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**Analysing educational transitions in upper secondary and higher education in Mexico. An empirical application of the capability approach and sociological perspectives on inequalities in education.**

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## **Declaration**

I hereby declare that this thesis was composed by myself. This thesis is my own work except where otherwise is specified with acknowledgement of other sources. This work has not been submitted for any other degree or professional qualification except as specified.

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# Abstract

In spite of educational expansion, a considerable number of individuals are not able to participate in upper secondary and higher education in Mexico. The main purpose of this thesis is to examine the factors influencing individuals' opportunities to make higher educational transitions in Mexico. These transitions are: participation in upper secondary education, completion of upper secondary education and progression to higher education. A parallel objective is to investigate the predictors of persons' institutional location in the upper secondary level. It is argued that the majority of the international studies in the field of educational transitions, as well as most of the studies conducted for Mexico in this area, have focused on examining the chances of entering an educational level but less attention has been paid on examining the opportunities of concluding a given level of education. This dissertation explores the chances of completing upper secondary education and it incorporates school dropouts in the analysis of educational transitions.

Another important purpose is to conduct interdisciplinary theoretical work. A theoretical framework composed of the capability approach, sociocultural reproduction theory and contemporary sociological perspectives on inequalities in education is used to operationalize key concepts and to provide possible explanations of persons' decisions to participate in upper secondary and higher education. From the capability approach, human agency, preferences and rationality have influence on educational decision-making. From Bourdieu's sociocultural reproduction theory, educational choices are not freely made because they are determined by cultural and socioeconomic constraints. Furthermore, drawing on the integrative theoretical framework several hypotheses are formulated and some of them are empirically tested using national survey data for Mexico: The School Dropouts Survey, 2011. The investigation adopts a quantitative methodology which includes the estimation of binomial and multinomial logistic regression models.

This study found that the effects of ascriptive factors such as social and ethnic background, gender and geographical location vary for each school transition. In addition, some of these factors contribute to predict person's location in academic and vocational pathways of upper secondary education. Nevertheless, individuals' capacity to attain higher levels of schooling is not completely determined by structural-related aspects. This thesis found that agency and capability dimensions such as freedom to choose school, aspirations and persons' preferences towards education are not only intrinsically valuable but instrumentally relevant for making

higher educational transitions. Furthermore, the type of institution attended and academic performance matter for entering and completing upper secondary and for attending higher education. This thesis concludes that the degree to which structural factors, agency and capability dimensions and school experiences make an impact on individuals' educational trajectories is significantly affected by specific institutional arrangements at each stage of education. Finally, the empirical evidence of this thesis has a number of important implications for educational policies in Mexico.

# Introduction

Mexico has achieved universal participation in primary education and it has expanded the levels of participation in secondary and post-secondary levels of schooling. However, it is becoming increasingly difficult to ignore that approximately five out of ten individuals aged 15-17 attend upper secondary education even though attendance at this educational level is compulsory since 2012 (INEE, 2014). Besides, approximately only three out of ten individuals aged 19-23 attend higher education (Ordorika and Rodriguez, 2012). In addition, around 14 out of 100 persons who enter upper secondary education dropout from schools (INEE, 2014). All these facts have heightened the need for examining the factors influencing participation in higher educational stages in the education system of Mexico.

This thesis draws on an interdisciplinary theoretical framework compounded of the capability approach and classical and contemporary sociological perspectives on educational inequality in order to investigate the extent to which a range of factors such as social and ethnic background, agency and capability dimensions, the type of institution attended and educational experiences are associated with persons' capacity to make higher educational transitions. These transitions are participation in upper secondary education, completion of upper secondary instead of dropping out and progression to higher education. Another important purpose is the examination of the factors that influence persons' institutional placement in the upper secondary level.

In particular, this thesis intends to determine the extent to which alternative dimensions of the institutional differentiation of upper secondary education in Mexico makes an impact on educational attainment and whether capability and agency related-factors influence students' mobility across transitions. These issues have not been sufficiently addressed at the national/system level before due to the lack of national representative data.

This thesis is composed of eight chapters. Chapter one presents some of the most important characteristics of the Mexican country and of its educational system. This section shows historical trends of participation and dropout rates in upper secondary

education. These indicators as well as indexes of enrolment and school attendance illustrate the low levels of participation in higher educational stages in Mexico.

Chapter two provides the theoretical framework of this dissertation. The main focus of this chapter is to develop an interdisciplinary perspective between the sociology of education and the Capability Approach (CA). The CA is integrated with classical and contemporary social stratification theories. The concepts, terminology and insights offered by different perspectives are used to analyse individuals' decisions to attain higher educational transitions and the factors that might promote or constraint it in the Mexican context. Emphasis lies on identifying how different theories from the sociology of education and from political philosophy addresses key enquiries such as how inequalities are understood, what is the role of education in society, what are the mechanisms that might contribute to the reproduction of social differentials in education, how material deprivation impacts on person's preferences and choices and to what extent agency and capability dimensions influence students' mobility across transitions. Besides, these theories are used to formulate hypotheses who intend to provide possible explanations of person's capacity to participate in upper secondary and tertiary education. Due to data availability, this thesis will not test all the hypotheses but they provide some general ideas and assumptions which might stimulate further data collection.

Chapter three presents empirical studies on education and social stratification. A large majority of these investigations adopts quantitative methodologies to examine the influence of social background on educational attainment at the national/system level. Moreover, some studies go beyond the analysis of social origin effects and they explore the impact of the type of institution/track on educational and social mobility. Additionally, this chapter discusses how some macro-level dimensions of the educational systems such as institutional arrangements and social selection practices might influence the levels of participation in education. This chapter concludes highlighting the main contributions of this investigation to the field of education and social stratification.

Chapter four presents the research questions and the methodology used for carrying out this study. Therefore, this section discusses the most important characteristics of the data source, the sample design and it notes how the sample design is taken into account to conduct the statistical analysis. Additionally, this chapter presents the analytical strategy for conducting the empirical study which includes data analysis, data management, data preparation and data reduction.

Chapter five is the first findings chapter. The beginning of this chapter focuses on analysing the effects of ascriptive factors (social and ethnic background, gender, and geographical location), the type of institution attended in lower secondary, grades and aspirations on the probability to enter upper secondary education for the age groups 16-25 and 16-18. The second section of this chapter presents and discusses the results of a multinomial regression analysis that is estimated in order to investigate the predictors of the opportunities of following different pathways in upper secondary education.

Chapter six is the second findings chapter and it focuses on examining the influences on upper secondary school completion as compared to dropping out. A distinctive aspect of this chapter tests the explanatory power of three different perspectives: Sen's capability approach, Bourdieu's cultural reproduction theory and Breen and Goldthorpe's rational action approach.

Chapter seven is the last results chapter and it discusses some of the main features of Mexico's higher education system and it also investigates the factors that have an impact on the chances of entering higher education. In addition, hypotheses from Sen's and Bourdieu's theories are also tested in this chapter. Finally, Chapter eight summarizes the main findings of this thesis and it draws some conclusions and implications for current educational policies being implemented in the Mexican context.

# Chapter 1 An overview of Mexico

## 1.1 The Mexican context

Mexico is one of the largest and more dynamic economies of Latin America.

According to the World Bank, in 2014, Mexico has a population of 125.4 million; this figure for Brazil is 206.1 million; for Colombia is 47.8 million and for the whole Latin American region is 623.3 million. (World Bank, 2016a). With regard to economic wealth, the World Bank estimates that in 2014, Mexico has a Gross National Income (GNI)<sup>1</sup> of 1,237.5 billion dollars; this figure is higher for Brazil and lower for Colombia: 2,429.7 and 381 billion dollars respectively. For the same year, the total GNI for the Latin American continent is 6,207.5 billion dollars. (World Bank, 2016b).

The Mexican economy experienced some fluctuations during the past century. After the Second World War, this country had a period of significant economic prosperity based on an economic policy- the model of import-substitution industrialization- which strongly promoted industrial progress<sup>2</sup>. However, according to Urquidi (2005), from the beginning of the 1980s the public finances of Mexico collapsed, the levels of national income for petroleum sales reduced and the foreign debt excessively increased. In order to face the economic downturn, in 1982, Mexico implemented a new generation of policies called “the neoliberal policies”.

Due to the economic crisis, many scholars have characterized the 1980s as the lost decade of Mexico and even some analysts (e.g. Urquidi, 2005) refer to the 20th century as the lost age of the Latin American continent. According to Torche (2010), the economic crisis faced during the 1980s by Latin American countries generated a fall of family income which pushed individuals entering to the labour market instead

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<sup>1</sup> The Gross National Income (GNI) measures the economic value of the total production of goods and services of a country. This indicator is commonly used to make comparisons of nations' economic growth (World Bank, 2016b)

<sup>2</sup> The Economic Commission for Latin America and the Caribbean (Comisión Económica para América Latina y el Caribe, CEPAL) promoted the model of import-substitution industrialization to stimulate economic development in the Latin American continent. This model seeks for replacing the external dependency of industrialized products by producing them locally at each nation. (Urquidi, 2005).



of continuing in schools. This situation leads to an increase of social inequality in educational attainment in secondary and post-secondary education. For Torche, inequality resulted partially from decreasing demand for education among the economically poor and not only from the incapacity of the education system to expand supply.

Furthermore, Székely and Mendoza (2015), point out that the levels of inequality in terms of income distribution increased in Mexico during the 1980s and 1990s but these patterns were modified during the 2000s and the initial years of 2010. More specifically, they show that the Gini inequality index<sup>3</sup> for Mexico was .53 in 1990, .55 in 2000 and this figure reduced to .49 in 2012 (Székely and Mendoza, 2015: 401).

Moreover, Mexico's National Council for the Evaluation of Social Policy (*Consejo Nacional de Evaluación de la Política Social, CONEVAL, 2015*), estimates that in 2012, about 45 per cent out of the total population live in poverty (53.3 million of inhabitants). This means that almost half of the people lack at least one of the basic goods and services essential for living (health services, social security, education, housing quality and space, basic services at home and access to food) and their income level is below the base-line to guarantee economic well-being (MXN \$2,660.40 for urban areas and MXN \$1,715.57 for rural areas) (CONEVAL, 2016). Besides, 9.8 per cent out of the total inhabitants in the country live in extreme poverty (11.5 million of inhabitants) which implies that they lack at least three of the basic goods and services which are basics for living and they also have an income level below the threshold to secure economic well-being (CONEVAL, 2015). In 2010, the main policy to alleviate poverty in Mexico, the Human Development Program Opportunities<sup>4</sup>, reached approximately 5.9 million of beneficiary families (INEGI, 2016).

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<sup>3</sup> The Gini index measures the extent to which income distribution among individuals or households deviates from a perfectly equal distribution. A value of 0 represents perfect equality and a value of 1 implies perfect inequality. (World Bank, 2016)

<sup>4</sup> In 2014, the Programme Opportunities changed its name to Programme Prospera.

In spite of the levels of inequality and poverty, Mexico has achieved higher levels of human development throughout the years. Specifically, the index of human development<sup>5</sup> indicates that this country has improved on dimensions such as average years of schooling, expected years of living and national income level. By a way of illustration, in 2014, the value of the human development index for Mexico is .75 which situates the country in the position 74 out of 188 nations. This figure also locates Mexico in the group of nations with the high human development category and it situates the country slightly above the average of .74 for Latin American nations. (PNUD, 2015)

Finally, as regards to the political environment it can be said that Mexico's transition to democracy has been slow. Although Mexico did not experience military dictatorial governments, like many other Latin American countries, during 70 years this nation was governed by only one political party: the Institutional Revolutionary Party (Partido Revolucionario Institucional, PRI). This situation changed in 2000 when a candidate from another political party, the National Action Party (Partido Acción Nacional, PAN), was elected as president.

So far this section has given an account of key socioeconomic and political indicators of Mexico. The following section will discuss the characteristics of Mexico's educational system, in particular it will focus on upper secondary education because it is the main educational level analysed in this dissertation.

## **1.2 The education system of Mexico**

According to the National Institute for the Evaluation of Education (Instituto Nacional para la Evaluación de la Educación, INEE, 2014), the Mexican education system catered 40,315,785 students during the school year 2012-2013. This figure represents approximately 34 per cent of the total number of inhabitants in the

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<sup>5</sup> The human development index (HDI) is a statistic which offers a multidimensional measure of development. This statistic is calculated drawing on three main components: education (mean years of schooling and expected years of schooling), life expectancy at birth and an index of income per capita (gross national income) (PNUD, 2015). In Mexico this index is calculated for the whole country and for the 33 federal states. The value of the index range from zero to one: the higher the value of the index, the higher the level of human development. (PNUD, 2015)

country. Besides, for the same school year, the population of students was assisted by 1,877,111 teachers in 256,237 institutions (INEE, 2014).

Moreover, Mexico's education system comprises three main educational levels: elementary education (also called basic education), upper secondary education and tertiary education (Table 1). The typical age to attend elementary education is from 3 to 14 years old. Whereas the common age group to attend upper secondary is between 15 and 17 years old. This educational level normally lasts three years but there are some programmes that might take up to five years. Compulsory education's duration has increased over the years. Primary was declared obligatory in 1934; lower secondary in 1993; pre-primary in 2004 and upper secondary education became compulsory in 2012. (INEE, 2014). Nowadays, basic education and upper secondary education are compulsory in Mexico.

Elementary education includes pre-primary, primary and lower secondary. Each of these educational levels corresponds respectively to levels zero, one and two of the International Standard Classification of Education (ISCED-2011) of the UNESCO (Table 1). Upper secondary education comprises three main types of schools: academic (or general), technological and technical. The academic pathway aims to prepare individuals to enter higher education. The technological option has two general purposes: to prepare students for entering tertiary education and to enable them to participate early in the labour market mainly in areas such as agriculture, industry and services. The technical route aims to instruct technicians mainly in activities related to industry and services. Although this path has had a strong component of training for work, their graduates are not formally impeded from entering higher education (SEP-SEMS, 2008 and INEE, 2014).

Finally, tertiary education aims to educate professionals in several areas of knowledge. This educational stage comprises undergraduate and postgraduate programmes (Table 1). The former are taught in universities (autonomous, non-autonomous, public or private), intercultural universities (for indigenous regions), *scoulas normales* (for teachers' education and training), technological institutes (linked to the federal government or the federal states) and technological universities

(which last two years and train university technicians). The later, postgraduate programmes, which comprise specialisation, masters and doctorates, can be taught both in public and private institutions. Moreover, during the school year 2011-2012, around 229,000 students were enrolled at some postgraduate programme: 60 per cent of them studied masters' degrees, 11 per cent studied doctorates and 19 per cent studied specializations programmes. (Narro, *et al.*, 2012).

**Table 1.- The Mexican education system**

|                      | Type of education         | Educational level         | ISCED-2011 | Type of service  | Typical age | Duration (years) |
|----------------------|---------------------------|---------------------------|------------|--|-------------|------------------|
| Compulsory education | Basic education           | Pre-primary               | 0          | CENDI  | 3-5         | 3                |
|                      |                           |                           |            | General  |             |                  |
|                      |                           |                           |            | Indigenous   |             |                  |
|                      |                           |                           |            | Communitarian  |             |                  |
|                      |                           | Primary                   | 1          | General  | 6-11        | 6                |
|                      |                           |                           |            | Indigenous   |             |                  |
|                      |                           |                           |            | Communitarian  |             |                  |
|                      |                           | Lower secondary           | 2          | Academic general   | 12-14       | 3                |
|                      |                           |                           |            | Technical  |             |                  |
|                      |                           |                           |            | Telesecundaria   |             |                  |
|                      |                           |                           |            | Communitarian  |             |                  |
|                      |                           |                           |            | For persons who work   |             |                  |
|                      | Upper secondary education | Upper secondary education | 3          | Academic general   | 15-17       | 2-5              |
|                      |                           |                           |            | Technological  |             |                  |
|                      |                           |                           |            | Technical  |             |                  |
| Tertiary education   |                           | Undergraduate             | 5 and 6    | Scoulas Normales Universities<br>Technological institutions and universities | 18-23       | Variable         |
|                      |                           | Postgraduate              | 7 and 8    | Specialisation, master, doctorate  | Variable    | Variable         |

Source: INEE (2013a, 2014) and OECD, European Union and UNESCO-UIS (2015).

### 1.2.1 Expansion of higher education

This section describes the expansion of higher education in Mexico. The offer of higher education in Mexico has tended to be located in urbanised regions. For Tuirán and Muñoz (2010), in previous decades' higher education was mostly placed in Mexico City, which is the capital and financial centre of the country. More specifically, Tuirán and Muñoz, note that at the beginning of the sixties, 60 per cent

out of the total population of higher education's students was concentrated in the capital of the country but this figure decreased throughout the years and, in 2008, two of the biggest federal states of Mexico (Mexico City and Nuevo Leon) contained around 20 per cent of the total number of higher education students.

Another important characteristic of Mexico's higher education system is that it is diversified. According to Narro, *et al.*, (2012), the offer of higher education comprises autonomous and non-autonomous universities, public and private universities, state and federal institutions, technological universities, *scuolas normales* and intercultural universities. Additionally, Narro and collaborators note that higher education's expansion has mainly been driven by creating technological universities, open and distance learning routes and by increasing the number of private schools.

More recently, the growth of higher education has included the creation of intercultural universities. These universities deliver higher education services for places with a high concentration of indigenous populations. For Schmelkes (2003), intercultural universities do not select students based on academic merit: instead, they are focused on improving students' academic skills and knowledge throughout the first year of university studies. Therefore, according to Schmelkes (2009:5), intercultural universities have addressed the underrepresentation of indigenous persons in higher education which was caused by: "the poor quality of the education received by indigenous populations at earlier educational levels; racism and discrimination".

Another important source of institutional diversification at the tertiary level has been the creation and development of technological universities. For Flores-Crespo (2010), these types of institutions deliver short-duration vocational education which aims training individuals for being technical-professionals (5B level ISCE-Unesco). Besides, Flores-Crespo notes that even though the majority of technological universities are placed in urbanised regions, they are attended by a considerable proportion of students who face socioeconomic disadvantages.

Therefore, based on Schmelkes' and Flores-Crespo's studies it can be argued that there are geographical differences in access to different pathways in tertiary education. Those living in indigenous areas seem to have fewer chances to enter technological higher education than those living in cities. This statement resembles the findings discussed in chapter five of this thesis where it is identified that indigenous persons are less likely to enter certain types of upper secondary vocational schools such as technological federal institutions and technical schools. Thus, those living in rural and indigenous areas have a more restrictive offer of upper secondary and higher education within their reach.

In addition, public universities (e.g. autonomous universities of the federal states) have significantly expanded the number of students enrolled over the years. Their admission process commonly relies on applying entrance examination such as the Basic Knowledge and Skills Test (EXHCOBA) and the National Exam for Entering Higher Education (EXANI, II). For Backhoff, *et al.*, (2011), the results of the EXHCOBA shows that students have not developed certain skills and abilities that should have been learned at previous educational stages. This statement identifies the need to explore issues of schools quality.

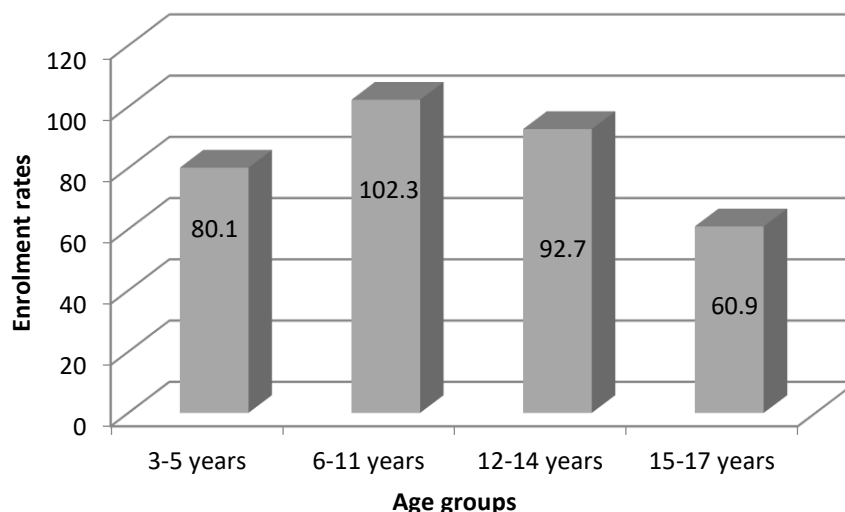
Overall, in spite of the efforts for delivering higher education to semi-urban and rural places, and the expansion of this sector through the creation of new educational pathways such as intercultural universities and technological universities, the proportion of persons who reach this educational stage is still very low, and higher education in Mexico continues being mainly for elites.

### **1.2.2 Access to education**

A first approach to analyse access to education is by exploring enrolment and coverage rates. Enrolment rates are the proportion of persons from specific age groups who are matriculated at some educational level whereas the term coverage rate is understood as the proportion of individuals enrolled at the educational level appropriated to their age group (INEE, 2014). Figure 1 shows enrolment rates for different age groups during the school year 2012-2013. The first thing to note is that

the proportion of individuals aged 6-11 who attend school is 102.3 per cent; these figures for the age groups 12-14 and 15-17 are 93 and 61 per cent respectively.

**Figure 1.- Enrolment rates for individuals of different age groups 2012-2013**



Source: my own elaboration using data from INEE (2014)<sup>6</sup>

Besides, data from INEE (2014) indicate that during the school year 2012-2013 the coverage rate in primary education is 100 per cent, this number for lower secondary education is 82.4 per cent and for upper secondary education is 52.9 per cent . Both, enrolment and coverage rates illustrate that Mexico has achieved universal access in primary education. This is an important achievement which is not common in all parts of the world. By a way of illustration, United Nations (2015) point out that enrolment rate in primary education for non-industrialized countries went from 83 per cent in 2000 to 91 per cent in 2015. Moreover, in order to tackle several problems such as poor school attendance, poverty, hunger and disease the United Nations (2015) formulated the Millennium Development Goals; one of these goals explicitly aims achieving universal primary education for all countries.

It can be argued that the substantial progress made in increasing access to primary education was partially owed to the political and economic support provided by the Mexican government. Nevertheless, there are some crucial challenges to attain

<sup>6</sup> The enrolment rate for the age group 6-11 is slightly above 100 per cent due to the National institute for the evaluation of education used different sources of information to estimate the index.

universal attendance at subsequent educational levels. The next part of this chapter will examine indexes of participation specifically for upper secondary education.

### **1.2.3 Participation and dropout from upper secondary education**

As it can be seen from Table 2, coverage rates in upper secondary education are considerably low which indicates that a substantial number of adolescents do not participate in this educational level. For instance, the net coverage rate for the school year 2012-2013 is 52.9 per cent. This means that around half of the population aged 15-17 is actually out of this education level. For the same period the coverage rate for women is 54.6% while this figure is lower for men 51.3 per cent (INEE, 2014:242).

Besides, there are substantial differences in this indicator according to federal states. INEE (2014) shows that for the school year 2012-2013, the three federal states that reported the highest coverage rates are Mexico City (78.3%), Sinaloa (63.9 %) and Tabasco (62.1%). On the other hand, the federal states with registered the lowest coverage rates are Guerrero (43.1%), Michoacán (44.4%) and Jalisco (45.6%). It is surprising the case of Jalisco because four out of 10 youths aged 15 to 17 do not attend upper secondary education even though this educational level is compulsory since 2000 in Jalisco.

It is worth noticing that, in most of the federal states, higher participation rates in upper secondary education are consistent with higher levels of human development except for Jalisco. For instance, according to the United Nations Development Programme (UNDP, 2016), in 2012, the value of the Index of Human Development (IHD) for Mexico's City (.83) is the highest of all the federal states of Mexico which indicates that this federal state has very high levels of life expectancy, school attendance and income per capita. The value of this index for Sinaloa and Tabasco are also among the highest: .75 and .74 respectively. Conversely, the IHD for Guerrero, Michoacán and Jalisco are .67, .70 and .75 (UNDP, 2016). These numbers indicate that Guerrero and Michoacán are among the federal states with the lowest levels of human development.



Dropout rate is defined by INEE (2014:279) as the total number of pupils leaving school between consecutive school years before completing the educational level of reference. During the school year 2011-2012 the overall dropout rate in upper secondary education is 15 per cent (Table 2). This figure is 16.9% for men and 13.2% for women (Table 2). Besides, the highest dropout rate is for technical upper secondary schools (21.9%), the second highest is for technological schools (15.6%) and the lowest dropout rate is for academic institutions (13.7%) (INEE, 2014).

**Table 2.- Coverage and dropout rates from 2006-2007 to 2012-2013**

| School year | Coverage (15-17) | Coverage (16-18) | Drop out |
|-------------|------------------|------------------|----------|
| 2006-2007   | 46.2             | 59.7             | 16.3     |
| 2007-2008   | 47.8             | 60.9             | 16.3     |
| 2008-2009   | 48.9             | 62.3             | 15.9     |
| 2009-2010   | 51.7             | 64.4             | 14.9     |
| 2010-2011   | 50.1             | 66.7             | 14.9     |
| 2011-2012   | 51.9             | 69.3             | 15       |
| 2012-2013   | 52.9             | 71.3             | 14.3     |

Sources: my own elaboration from INEE (2011, 2013a, 2014) and SEP-SEMS (2012).

As it is showed in Table 3, the dropout phenomenon is more frequent during the first year of upper secondary education. For example, for the school year 2012-2013, approximately 23 out of 100 youths who enter upper secondary education left their studies during the first school year. This figure was higher for men (25%) than for women (19.9%) (INEE, 2015).

Moreover, according to INEE (2015), there are two different measures of dropout rates: intra-curricular dropout rate refers to the proportion of students who leaves upper secondary education during the school period; whereas, the term inter-curricular dropout is understood as the percentage of students who leave upper secondary education until the end of a school year. The intra-curricular dropout rate (8.9) is higher than the inter-curricular dropout rate (5.4) which indicates that most dropouts abandon school before completing a school grade (see Table 3)

**Table 3.- Dropout rates from upper secondary education, 2012-2013**

| Dropout rate     | Total | 1st year | 2nd year | 3rd year |
|------------------|-------|----------|----------|----------|
| Total            | 14.3  | 23.7     | 15.5     | -2.0     |
| Intra-curricular | 8.9   | 12.5     | 7.8      | 4.6      |
| Inter-curricular | 5.4   | 11.2     | 7.7      | -6.7     |

Source: adapted from INEE (2015:271)

This section has shown that low levels of coverage and the dropout phenomenon are two key problems faced in upper secondary education. Although both indicators have improved over the years, the advancements have been rather slow and a substantial proportion of persons in the proper age group to attend upper secondary education are actually out of schools. Finally, the examination of coverage rates and dropout rates is a first strategy to analyse participation in upper secondary education. In the next section, additional data will be displayed so that social differences in the opportunities to attend school can be discussed.

#### **1.2.4 Educational expansion and social differences in school attendance**

The previous section examined the levels of educational participation using enrolment and coverage rates. In this section, school attendance rates are examined in order to complement the preceding analysis. School attendance rate is understood as the percentage of persons -in the typical age group to attend at specific level of education- who actually attends schools (INEE, 2014). Unlike previous measures, school attendance rates are calculated using household surveys and for this reason it is feasible to identify different sub-populations of young people: however, these measurements are limited because they do not specify at which level of education individuals are matriculated.

Thus, school attendance rates illustrate some basic trends of educational expansion and social inequalities in educational attainment. Table 4 describes school attendance rates for youngsters aged 15-17 having completed elementary education according to socioeconomic characteristics and context-related factors. The first thing to note is that the school attendance rate for youngsters aged 15-17 who completed elementary education increased from 68.5 per cent in 2000 to 79.3 per cent in 2012. Thus,

during these 12 years, the school attendance of individuals aged 15-17 increased in 10 per cent units for the whole country.

Nevertheless, data from Table 4, suggest that individuals' socioeconomic characteristics such as parental education, ethnicity, poverty conditions, income level and the level of urbanisation of neighbourhoods may have been important factors linked to the levels of school attendance both during 2000 and 2012. More specifically, in 2012 a considerable proportion of indigenous people (72.9%) did not attend school compared to the percentage of non-indigenous (79.9%); the group of young people who live in urban communities reported significantly higher attendance rates (83.1%) than those who live in rural and semi-urban communities (68.5% and 79.3% respectively); however, no significant differences were found based on gender (Table 4).

Parental education is generally seen as a factor strongly related to persons' educational attainment. In 2012, the school attendance rate is 97.4 for the group of young people who have fathers with higher education studies; conversely, for youngsters who have fathers who did not complete elementary education this figure is 70.5 per cent whereas for youngsters who have parents that have never been enrolled in basic education the school attendance rate is lower: 63.1 per cent (Table 4).

Besides, there are marked differences in the school attendance rate if we focus on poverty conditions. In 2012 the attendance rate of the subpopulation of young people who live in households with alimentary poverty was 70 per cent, while the proportion of youngsters living in "non-poor" households who attended school is 81.9 per cent. (Table 4)

Furthermore, in 2012, young people who live in households with the highest level of income (V quintile), have 85.8 per cent of chances to attend schools whereas for those youngsters living in households with the lowest level of income (I quintile), the school attendance rate is 68.7 per cent (Table 4). Therefore, these figures suggest that the level of income at home is an important driving factor of individuals' opportunities to attend school.

Although the Mexican educational system has expanded the opportunities to attend school from 2000 and 2012; social, gender, ethnic and economic differentials in access to education remains throughout the years. Nevertheless, it is worth stressing that in spite of the persistence of group and context related disadvantages in educational participation, persons with the lowest levels of income, those facing alimentary poverty and those living in rural communities significantly increased the chances of attending school much more than other social groups.

**Table 4.- School attendance rates of persons who have completed basic education according to socioeconomic characteristics, 2000 and 2012**

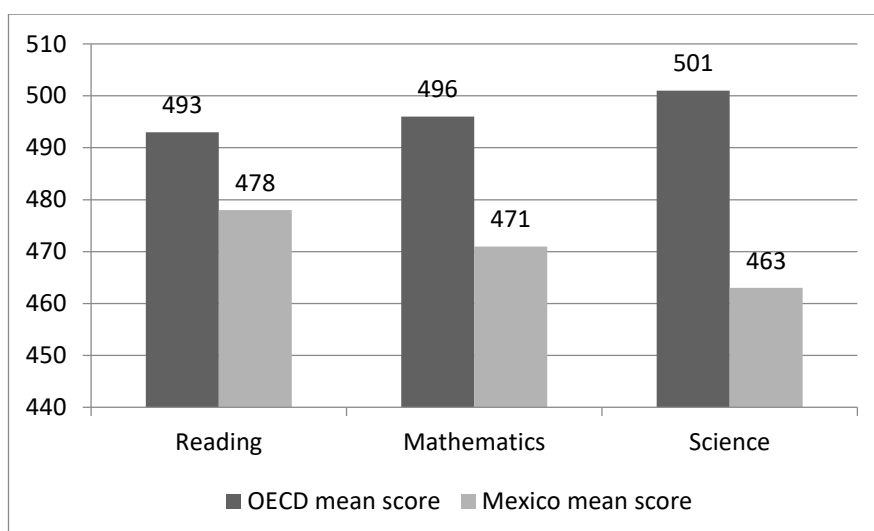
| <b>Subpopulations</b>             | <b>2000</b> | <b>2012</b> | <b>Difference<br/>(2012-2000)</b> |
|-----------------------------------|-------------|-------------|-----------------------------------|
| Population                        | 68.5        | 79.3        | 10.8                              |
| Gender                            |             |             |                                   |
| Men                               | 68.2        | 79.9        | 11.7                              |
| Women                             | 68.7        | 78.7        | 10                                |
| Urbanisation                      |             |             |                                   |
| Rural community                   | 48.7        | 68.5        | 19.8                              |
| Semi-urban community              | 66          | 79.3        | 13.3                              |
| Urban community                   | 73.9        | 83.1        | 9.2                               |
| Language spoken at home           |             |             |                                   |
| Indigenous                        | 55.3        | 72.9        | 17.3                              |
| Non- indigenous                   | 68.9        | 79.9        | 11                                |
| Father educational level          |             |             |                                   |
| Never enrolled in basic education | 48.9        | 63.1        | 14.2                              |
| No complete basic education       | 59.8        | 70.5        | 10.7                              |
| Complete basic education          | 73.1        | 80.6        | 7.5                               |
| Upper secondary education         | 86.7        | 90.9        | 4.2                               |
| Higher education                  | 93.0        | 97.4        | 4.4                               |
| Poverty                           |             |             |                                   |
| Alimentary                        | 46.1        | 70          | 23.9                              |
| Capabilities                      | 55.1        | 73.4        | 18.3                              |
| Patrimony                         | 63.1        | 73.1        | 10                                |
| No poverty                        | 85.7        | 81.9        | 3.8                               |
| Income quintile                   |             |             |                                   |
| I                                 | 39.4        | 68.7        | 29.3                              |
| II                                | 67.4        | 73.6        | 6.2                               |
| III                               | 74.5        | 76.4        | 1.9                               |
| IV                                | 80.4        | 82.1        | 1.7                               |
| V                                 | 95          | 85.8        | -9.2                              |
| Total population                  | 2,158,210   | 4,051,140   |                                   |

Source: my own elaboration from INEE (2013a and 2014).

### 1.2.5 Results of Mexico and the OECD countries in Pisa assessments

This section provides an indication of the skills and abilities developed by individuals who remain until the end of upper secondary education in Mexico in comparison with other industrialized countries. Figure 2 shows differences in the results of Pisa assessments between Mexico and the average results of the OECD countries in 2009. The results indicate that the average scores in reading, mathematics, and science of the OECD countries are higher than the mean scores of Mexico. Nevertheless, the gap difference is lower in reading (15 units) than in mathematics and science scores (25 and 38 units respectively).

*Figure 2.- Average score in reading, mathematics and sciences for Mexico and the OECD*



Source: my own elaboration from INEE (2013b)

It is worth noticing that data from Mexico come from Pisa grade 12 assessments and data from the OECD countries come from Pisa grade 9 assessments. Pisa grade 9 evaluates skills and abilities of individuals aged 15. In 2009, Pisa assessments were applied to those youngsters attending the last year of upper secondary education in Mexico (individuals aged approximately 17-18). This evaluation is known as Pisa grade 12. Both Pisa grade 9 and Pisa grade 12 are compared because the same skills and abilities were evaluated to individuals attending different school years in Mexico in 2009.

### **1.3 Final comments**

This chapter has provided an overview of the main characteristics of the Mexican context and its education system. Several indices exposed the low levels of participation in education, the issue of dropping out from upper secondary and students' low academic performance, among others. Additionally, official statistics from the Mexican government illustrated some basic trends of educational expansion and social inequalities in educational opportunities. All these indicators have revealed a complex phenomenon which deserves to be more carefully examined.

Furthermore, indices such as school attendance rates, coverage rates and dropout rates carry with them several limitations. As it was mentioned earlier in this chapter, the index of school attendance estimates the proportion of individuals from a specific age group who attend school but it does not exactly inform us at which educational level youngsters are enrolled. As a consequence, it is not possible to know the extent to which trends of social gender and ethnic differences in school attendance refer specifically to upper secondary education or to other educational levels. Besides, coverage and dropouts rates are general aggregate measures which do not reveal issues related to inequalities. To be specific, dropout indexes do not reveal the sociodemographic characteristics (family characteristics, gender or ethnic group) of those individuals who have decided to leave their educational careers prematurely.

In order to overcome the limitations of official statistics and to broaden understandings of the factors influencing access and completion of upper secondary education and access to tertiary education, data from the School dropouts survey from Mexico, 2011 will be analysed in subsequent chapters of this thesis (chapters five, six and seven). The next chapter presents the theoretical framework of this study which is used to formulate some hypotheses in order to provide explanatory arguments for the levels of participation in upper secondary and post-secondary levels of schooling.

## **Chapter 2 Theoretical framework. An interdisciplinary perspective for analysing educational transitions**

### **2.1 Introduction**

This chapter presents an interdisciplinary theoretical framework to analyse educational transitions in Mexico. It focuses on integrating the capability approach with different traditions of the sociology of education. An integrative framework is formulated due to the fact that there are central issues that sociological perspectives cannot fully explain such as the role of freedom to choose and the influence of individuals' preferences and values on educational opportunities and outcomes. The capability approach focuses on these analytical dimensions without neglecting the impact of the social structure on a persons' educational and life opportunities.

It is widely recognized that the sociology of education has had a prominent role in addressing issues related to inequalities in education over the years. Central to the entire discipline has been the work of social stratification researchers who have investigated how different social groups gain access to education, participate in schooling and the extent to which they achieve educational and occupational outcomes. This field of inquiry has made important developments by explaining patterns of social class differentials in educational attainment (see Goldthorpe, 2010; Breen and Goldthorpe, 1997; Lucas, 2001 and Raftery and Hout, 1993).

Nevertheless, the growing body of social stratification research has tended to focus more on generating empirical work rather than on making theoretical advancements. Consequently, much of the research up to now to be more descriptive in nature.

In addition to the lack of theoretical contributions, far too little attention has been paid to establishing academic dialogues among different traditions of the sociology of education and other disciplines. For instance, interdisciplinary work for the assessment of inequalities in education has been much less frequent. On this matter, Unterhalter (2003) points out that there are several promising areas for conducting

interdisciplinary work between the sociology of education and the capability approach developed originally by the economist and philosopher Amartya Sen. Unterhalter (2003) suggests that key enquiries formulated within the capability perspective, discussions on equity in education, and the advocacy for an ethical concern for individuals can be complemented with a broad social analysis.

The lack of interdisciplinary work has scientific and policy-related consequences. Lucas and Beresford (2010), state that inequalities in education can be interpreted using diverse theories which might be the source of different and/or contradictory implications. Besides, Lucas and Beresford (2010:68), point out: “it is clear that the policy prescription depends more on the theoretical perspective one adopts than on the social fact one is considering, even when the social fact is not in dispute”. Therefore, Lucas and Beresford recommend establishing closer links between theories and empirical work, carrying on multidisciplinary theoretical studies and using both theories and empirical evidence to offer better quality information for social policy.

As it was stated earlier, a theoretical framework is formulated in order to broaden our understanding of the predictors of persons’ decisions to participate in upper secondary and higher education. It is expected contributing to the existing theoretical literature by providing a critical examination of two intellectual traditions: Sen’s capability approach and Bourdieu’s theory of sociocultural reproduction. These two approaches are very extensive and they have been extremely influential over the years. To be specific, three strategies are used to integrate Sen’s and Bourdieu’s approaches: the first one is to examine the role of education in society; the second one is to compare Sen’s ideas of capability and agency with Bourdieu’s concept of habitus and the third strategy to blend these theories is to complement Sen’s idea of adaptive preferences with Bourdieu’s notion of taste for necessity.

A parallel objective is to integrate the capability approach with contemporary sociological theories which have mainly contributed to explain the persistence of macro-level trends of social differentials in educational attainment. These perspectives are the sociological version of the rational choice theory (which is better



known as the rational action theory, RAT), the maximally maintained inequality approach (MMI) and the theory of effectively maintained inequality (EMI). Based on the critical review of theories some hypotheses are formulated in order to gain a better understanding of the influence of structural and individual level dimensions on educational transitions.

## **2.2 Sen's capability approach**

### **2.2.1 Core concepts: functionings, capabilities and agency<sup>7</sup>**

The capability approach is a theoretical framework for the assessment of individual development, wellbeing, poverty, inequalities and justice which was originally developed by Amartya Sen (Sen, 1977, 1985, 1992, 1999, and 2009). This perspective has been extended by the contributions of scholars from different academic disciplines, particularly by Nussbaum (1997, 2000; 2006, 2011) and Robeyns (2005). According to Robeyns (2005:93) a distinctive aspect of the capability approach is “its highly interdisciplinary character”.

Sen (1992) analyses classical theories of justice such as John Rawls' theory of justice, Utilitarian perspectives, the theory of Nozick, and the theory of rights developed by Dworkin. As it can be inferred from Sen's theoretical review, all theories of justice tend to emphasize the relevance and distribution of one specific aspect (e.g. primary goods, utility, income or rights) For Sen (1992), capabilities are the relevant dimensions for carrying out assessments of inequalities because they focus on persons' freedom to achieve and not just on their achievements.

The core concepts of Sen's approach are functionings, capabilities and agency. Sen (1992), notes that functionings are beings and doings which refer to what a person is able to be or to do. Sen distinguishes between basic functionings (e.g. being nourished, being healthy, and avoiding premature mortality) from more complex achievements (being happy, having self-respect and being able to participate in the life of the community). On the other hand, various conceptualizations of the term

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<sup>7</sup> For a more extensive review on the origins of the capability approach and the main differences between Amartya Sen's and Martha Nussbaum's versions of this perspective see Mendoza (2008).

capability can be found throughout Sen's writings. A commonly referred definition is:

Capability represents the various combinations of functionings (beings and doings) that the person can achieve. Capability is thus, a set of vectors of functionings, reflecting the person's freedom to lead one type of life or another (Sen, 1992:41).

Capability embodies a variety of potential functionings. However, capability is a more informative notion than functionings since it takes into account persons' freedom to make decisions about their way of living. Sen (2009), states that his proposal for transcending the analysis of functionings (achievements) and instead focusing on capability (opportunities to choose among a diversity of achievements) requires further attention because freedom and choices have intrinsic importance for people's lives and they are instrumental for human development.

Furthermore, reasoning is a fundamental aspect of the capability perspective. As it is illustrated in another very concise conceptualization of capability, this term is often described as person's freedom to do the things that she has reasons to value (Sen, 2009). Thus, the ability to reason is also stressed in the formulation of the notion of capability. Sen (2009), notes that any theory of justice may benefit by relying on reasoning for the analysis of justice and injustice. The strong emphasis on human rationality is justified by Sen (2009:35), as follows: "one of the main points in favour of reason is that it helps us to scrutinize ideology and blind beliefs".

Central to the capability approach is the concept of human agency. Sen's definition of agency refers to individual capacity to accomplish his/her own purposes and values which might not necessarily be related to personal welfare. More specifically, this is how Sen (1992:56) formulates the idea of agency: "a person's agency achievement refers to the realization of goals and values she has reasons to pursue, whether or not they are connected with her own well-being". For Sen (1999:19) an agent is "someone who acts and brings about change". Interestingly, Sen supports promoting individual agency and empowerment when dealing with poverty reduction.

For Ibrahim and Alkire (2007) the concept of agency comprises empowerment. They note that the term empowerment has been theoretically associated to a multitude of notions such as autonomy, self-direction, self-determination, liberation and self-confidence. In simpler terms, empowerment can be understood as an increment in power. (Ibrahim and Alkire, 2007). Drawing on Sen's conceptualization of agency (1985, 1992, 1999) and on Rowlands's (1997) categorizations of power, Ibrahim and Alkire (2007) develop several indicators of agency and empowerment which include four dimensions: control over personal decisions, power to make autonomous choices, ability to change aspects in one's life at the individual level and ability to generate changes at the communal level.

### *Critics of the capability approach*

In his more recent book on justice, Sen (2009) replies to some criticisms regarding the capability approach. Several researchers have pointed out that the capability perspective is an evaluative framework but not a theory (Robeyns, 2005). Sen (2009), replies by saying that the capability approach is a theory of justice in a broad sense. Basically, he considers that the capability approach provides a way to address questions regarding how to enhance justice and the elimination of injustice. Moreover, Sen emphasizes that justice is associated with human lives rather than just with the performance of the institutions (Sen, 2009: X).

Another frequent critic to Sen's work is related to its empirical application. Sen notes that: "there is some nervousness in facing a problem of valuation involving heterogeneous objects such as the evaluation of capabilities and functionings" (Sen, 2009:239). Sen (2009) notes that capabilities are diverse and non-commensurable because it is problematic to measure their 'values' in a common unit. Although Sen states that capabilities are non-commensurable this does not imply that the approach is not operationalizable. As Sen (1992) points out:

The capability approach can, thus, be used at various levels of sophistication. How far we can go would depend much on the practical considerations regarding what data we can get and what we cannot. Ideally, the capability approach should take note of the full extent of freedom to choose between

different functioning bundles, but limits of practicality may often force the analysis to be confined to examining the achieved functioning bundle only (Sen, 1992:179).

Having commented on some of the main criticisms faced by the capability approach, the next section moves to discuss how education is located in this perspective.

### **2.2.2 The role of education in society: education for freedom's expansion**

For Sen (1999), education is intrinsically and instrumentally relevant for two main reasons: it is considered a basic capability which has a positive impact on a person's welfare and it is also conceived as a social opportunity which can promote the development of others capabilities. Sen (1997) stresses that education can perform several roles, including: contributing to individuals' well-being and freedom achievements, influencing economic productivity and influencing social change. More specifically, this is how Sen illustrate the multiple rewards that can be attained by having access to education:

If education makes a person more efficient in commodity production, then this is clearly an enhancement of human capital. This can add to the value of production in the economy and also to the income of the person who has been educated. But even with the same level of income, a person may benefit from education, in reading , communicating, arguing, in being able to choose in a more informed way, in being taken into account more seriously by others and so on (Sen, 1997:1960).

Therefore, for Sen (1997) the capability perspective differs in several aspects from the human capital theory which mainly emphasizes the contributions of education to economic progress.

During the past years much more research has become available on education and capabilities. For instance, some theoretical contributions include: Flores-Crespo (2007), Walker (2010), Brighouse and Unterhalter (2010), Hart (2013) and Boni and Walker (2013). Some examples of empirical investigations are: Unterhalter (2012), Mendoza and Flores-Crespo (2012), Kosko (2013), Peruzzi (2015). Together, theoretical studies outline that the capability approach has received important

insights from other disciplines. While empirical studies illustrate that the capability perspective applied to the context of education can be operationalized using different methodologies.

In spite of the important advancements there are some gaps identified in this field of study. For instance, several researchers note that considerable work is needed to reach a better understanding of how agency is related to education. For instance Flores-Crespo, (2002:538) states that: “Explaining the relationship between inequality and education from functionalist perspectives runs the risk of failing to discuss how individuals act within social structures”. In a similar argumentative line, Malhotra (as cited in Brighouse and Untherhalter, 2010) notes that “Macro-level studies are especially weak on measuring agency and they do not often employ a relevant conceptual framework”. In addition, few studies in the area of education and capabilities use quantitative methodologies which might be partially explained by the lack of data to operationalize the capability approach using surveys and large-scale assessments.

In summary, the capability approach is an innovative conceptual framework which has been used broadly, especially to address issues on human development, well-being, poverty, inequalities and justice. This perspective has its roots in economic and philosophical literature but it has received significant attention in educational analysis. A merit of this approach is that it provides new ideas to understand and conceptualize inequalities and justice. It also reminds us of the importance of considering people’s freedoms as the focal aspect of social analysis.

#### *Adaptive preferences and individual choices*

The capability approach offers important insights for addressing the problem of adaptive preferences. For many scholars the notion of adaptive preferences has come to be used to refer to those states where deprivation and habituation to the social norms led individuals to consent to adverse living circumstances and even be content with them (Teschl and Comim, 2005).

Sen (1999) and Nussbaum (2000, 2011) have theorized on the notion of adaptive preference to criticise classical economic literature. Sen has written one of the most complete critiques to date of the foundations of the Utilitarianism, which has been one of the dominant approaches for addressing justice for many decades. According to Sen, classical utilitarianism conceives utility as a mental characteristic such as happiness or pleasure, although in more recent times some economists have defined utility as the fulfilment of desires. Interestingly, utility has commonly been operationalised “as some numerical representation of a person’s observable choices” (Sen, 1999: 1156, Kindle location).

Sen asserts that for the Utility based approaches, subjective factors such as the utility associated with the satisfaction of wants constitute the informational basis to analyse wellbeing and justice. However, Sen (1999:1194, Kindle location) argues that this perspective is limited because: (1) it does not take into account the unequal distribution of utility in the society; (2) it disregards individuals’ rights and freedoms and more importantly; (3) mental characteristics such as happiness or the accomplishment of desires might be influenced by adaptive preferences. In Sen’s view, adaptive attitudes occur when individuals’ own desires and preferences are adjusted particularly to tolerate adverse living conditions. This is why Sen considers that utilitarianism is a narrow approach to addressing issues related to deprivation and disadvantage. In Sen’s own words:

The deprived people tend to come to terms with their deprivation because of the sheer necessity of survival, and they may, as a result, lack the courage to demand any radical change, and may even adjust their desires and expectations to what they unambitiously see as feasible (Sen, 1999, Kindle Location 1214-1216).

Therefore, in order to go beyond very strict subjective evaluations of well-being and inequalities, which do not deal properly with issues of adaptive attitudes, Sen proposes concentrating on the assessment of functionings (achievements) and capabilities (substantive freedoms). By focusing on capabilities, assessments will transcend the analysis of preferences and choices and it will pay attention to the freedom (or lack of freedom) to choose among different valuable alternatives. In

Sen's version of the capability approach the definition of the list of relevant capabilities might vary among contexts and might be subject of some considerable debate. In a similar argumentative line, Nussbaum uses the capability approach to questioning lines of thinking based on Utilitarianism because:

[T]hey were unable to conduct a critical scrutiny of preference and desire that would reveal the many ways in which habit, fear, low expectations, and unjust background conditions deform people's choices and even their wishes for their own lives. So it is no surprise that the capabilities view ends up conducting just such a critique (Nussbaum, 2000: 114)

Besides, according to Nussbaum (2011), it is unrealistic to easily solve the issue of preference adaptation because it is related to person's nurturing in the social context. By way of illustration, Nussbaum asserts that if girls have been taught that education is not appropriate for them, girls' attitudes towards education and its returns will not simply be modified just by providing information. Nussbaum states that if women have profoundly internalized this view about schooling it will be even more complicated changing it. Consequently, in Nussbaum's opinion, the solution to detect and address unjustifiable preferences deformation can be found in an independent theory of social justice.

In the next section it will be discussed how the capability approach has contributed to broadening our understanding of adaptive attitudes in educational decisions.

### **2.2.3 Adaptive attitudes in education**

Some authors have been interested in expanding Sen's and Nussbaum's notion of adaptive preferences in order to analyse educational choices. For instance, recent studies drawing on the capability approach have examined how individuals' decisions to participate in education might be influenced by adaptive attitudes (see Bridges, 2006; Watts and Bridges, 2006; Watts, 2009; Watts, 2013; Kosko, 2012). For Bridges (2006) and Watts (2009) non-participation in higher education in the United Kingdom can be understood as a problem of adaptive attitudes. Watts and Bridges (2006) exemplify the issue of preference deformation using qualitative data from an empirical study conducted in the United Kingdom.

Bridges (2006) notes that if individuals have accepted or taken for granted different kinds of limitations established by their living conditions, they might think that entering tertiary education is out of their reach. Specifically, Bridges identifies several constraints on individuals' educational decisions: a) natural constraints (e.g. physical capacities); b) social, economic and political limitations (e.g. lack of income, discrimination); c) Ignorance and/or failure of rationality (e.g. absence of knowledge on the alternatives available to study a degree); d) socially fixed expectations (e.g. the role of women in the social context); and e) individuals' self-identity (e.g. not being self-confident). Besides, Bridges states that there might be certain variability on individuals' degree of consciousness on the factors influencing their choices.

In another study, a suggestive proposal is made by Watts (2009). Watts address the problem of preference deformation in educational settings by taking into account the 'counterfactual' of choices which implies: "[...] to take into account what an individual would prefer and do under different circumstances" (Watts 2009:432). Consequently, Watts examines not what individuals would prefer or choose if their social conditions were different but why they would or would not choose entering higher education rather than choosing other means to achieve well-being. Therefore, for Watts, individuals' decision to participate in education is influenced by the extent to which they value education as an end itself or as a means of achieving well-being. In simpler terms, for Watts it is feasible to explain the rejection of entering higher education because individuals can accomplish their well-being objectives by other alternatives and not necessarily by getting a degree.

Following this line of reasoning, Kosko (2012) assesses the educational and labour market outcomes of the Roma a traditionally economically deprived ethnic group from Romania. Kosko finds that Roma have less chance to complete primary education, are less likely to be employed and have fewer opportunities to end up in a high skilled job than individuals from other groups. Kosko argues that Roma's low levels of educational and occupational attainment might indicate that formal education and its returns are not highly valued by this social group. For that reason, Kosko draws on the capability approach to hypothesise that Roma's educational



attainment might be conceived as a problem of adaptive preferences not just to the ends but to the means of formal education. By doing so, she criticises the statement that education is a valuable capability for all individuals. What it is probably most interesting about Kosko's work is the use of the capability approach to make sense of quantitative data in education.

The studies of Bridges, Watts and Kosko advance our knowledge by identifying several constraints on educational choices which go beyond material constraints. Nevertheless, an aspect that is not sufficiently addressed in these studies is the extent to which preferences, aspirations and educational choices, as well as their constraints, vary over time both across different cohorts and across an individual-life course.

Regarding the Mexican context, there has been empirical research applying the capability approach to examine how higher education contributes to fostering human development (Flores-Crespo, 2005). In his study for Mexico, Flores-Crespo (2005) finds that graduates from technological universities are able to reach personal and professional achievements such as: self-confidence, the ability to develop a life-project and the capacity to acquire relevant knowledge to work. Flores-Crespo also identified that graduates had few opportunities for obtaining jobs, fair salaries and for continuing in schools.

In spite of the important developments in this area of knowledge, there is a general lack of studies in Mexico and abroad, which applies Sen's perspective in the field of education using large-scale datasets. Here the importance of this thesis which draws conceptually on the capability approach and operationalizes agency and capability dimensions using survey data from Mexico.

To sum up, this section has analysed the main concepts of the capability approach, its core assumptions and it has reviewed empirical literature drawing on Sen's perspective. The next part of this chapter will review different approaches from the sociology of education. In the final section of this chapter it will be specified how the interdisciplinary theoretical framework is applied in this investigation.

## **2.3 Bourdieu's theory of sociocultural reproduction**

Pierre Bourdieu has made a major contribution to the social and anthropological sciences by developing a theoretical framework to explain social practices. Among his best known books (listed chronologically) are: *Outline of a Theory of Practice* (1972), *Reproduction in Education, Society and Culture* (1977) and *Distinction: A Social Critique of the Judgment of Taste* (1984). Bourdieu's work is extensive, complex and written in abstract language despite this it aids social researchers to establish relationships between theoretical reflexions and empirical evidence.

The conceptual tools created by Bourdieu were developed mainly in the 1970's and 1980's. Bourdieu formed concepts such as habitus, field, cultural capital, social capital and taste for necessity. However, according to Reay (2004), some of Bourdieu's concepts and ideas (e.g. cultural capital) are more well-known than others. In the next section Bourdieu's key concepts and arguments are discussed.

### **2.3.1 The role of education in society: sociocultural reproduction**

In the book *Reproduction in Education Society and Culture* (1977) Bourdieu and Passeron provide a broad analysis of the role of education in society. They argue that education is a process that reproduces cultural capital over time. The reproduction of cultural capital occurs in schools through pedagogical action -which is also understood as symbolic violence- that mainly serves the interests of dominant groups. This symbolic strength is expressed as follows:

[T]he fact of imposing and inculcating certain meanings, treated by selection and by the corresponding exclusion as worthy of being reproduced by PA [pedagogical action], reproduces (in both senses) the arbitrary selection a group of class objectively makes and through its cultural arbitrary" (Bourdieu and Passeron, 1977:8).

In other words, schools impose the dominant culture which is the culture of individuals from higher social classes. Within schools the transmission of knowledge and meanings seems legitimate for all individuals although it shows unequal power relations. Working-class people lack the type of cultural capital that individuals from

middle and upper classes have; therefore, they face more difficulties in accessing and comprehending the content offered by schools. As a consequence, individuals from lower social backgrounds are less likely to make progress in the education system than those belonging to more advantageous social groups.

It is worth emphasizing that in Bourdieu's theory, cultural capital is the type of capital that is reproduced in schools. According to a conceptualization provided by Bourdieu (1997:47), cultural capital encompasses three forms: embodied, objectified and institutionalized. The first one refers to person's long-term dispositions. This form of capital, also called cultivation, is acquired by investing time in its assimilation. The second one refers to cultural goods such as books, paintings, dictionaries, musical instruments, among others. The third form of cultural capital has come to be used to refer to educational qualifications.

In addition, Bourdieu and Passeron (1977:43) argue that success in the education system is essentially determined by the education achieved in childhood. In their view, it occurs because the habitus learned at home constitutes the base for receiving and assimilating the "classroom message" and for developing later habitus. Schools assume individuals have developed prior skills and knowledge. However, unlike people from lower classes, individuals from elite groups possess the most suitable cultural capital to succeed in schools.

For Bourdieu and Passeron, another function of the educational systems is social selection; this is reached either by examination or by self-elimination. They consider that working class individuals are more likely not to enter a given level of education than to put themselves in a position to be eliminated by exams. If they do not select themselves out, it is more probable that they continue their education in the type of schools that Bourdieu and Passeron called 'second-order branches'. Bourdieu and Passeron argue that individuals' choices regarding their self-exclusion from certain types of schools are influenced by objective long-lasting social conditions:

Even when it seems to be imposed by the strength of a 'vocation' or the discovery of inability, each individual act of choice by which a child excludes himself to relegation to a devalorized type of course takes account of the ensemble of

the objective relations (which pre-exist this choice and will outlast it) between his social class and the educational system, since a scholastic future is of greater or lesser probability for a given individual only insofar as it constitutes the objective and collective future of his class or category (Bourdieu and Passeron, 1977:155-156).

The unequal representation of individuals from different social classes at each stage of education is explained by how the education system is related to the class structure. Individuals from different social classes have different chances of going ahead in their educational careers. In Bourdieu's view, it is through examinations that educational systems legitimize the failures of working class pupils, who lack 'the proper' cultural capital as well as the success of upper class pupils. Thus, social selection in schools contributes to preserving social inequalities.

The theoretical foundations developed by Bourdieu generated a key line of investigation in the sociology of education which aims to explore the extent to which cultural capital might be associated to individuals' educational attainment and achievement. Many studies have been conducted on this theme in different countries and regions over the years (e.g. Sullivan, 2001; Zimdars, *et al.* 2009; De Graaf, *et al.*, 2000; Tramonte and Willms, 2010; Wells, 2008). Interestingly, although cultural capital has been measured in several ways; for example, by using data on parental education, participation in cultural activities (e.g. *beaux arts*), reading habits and cultural knowledge, among others, a common finding of this body of research is that cultural capital partially explains differences in individuals' educational achievement.

Finally, Bourdieu's perspective has been quite influential in the Mexican context. His main concepts have been applied to analyse social inequalities in education for many years. In following sections of this dissertation some of these studies will be cited.

### **2.3.2 Habitus and dispositions**

In the previous section it was supposed how educational institutions might perpetuate social inequalities. It was specified that because individuals from less advantageous backgrounds do not possess the cultural capital of the elite groups they have less

opportunities to succeed in schools. This section moves on to discuss Bourdieu's concept of habitus because it explores external influences on individuals' actions and preferences. In addition, it is examined whether the notion of habitus is able to capture dimensions of human agency, which is understood as a person's capacity to freely act, choose and generate change.

While a variety of definitions of the term habitus have been suggested by Bourdieu, this thesis will use the following definitions:

The habitus is necessarily internalized and converted into a disposition that generates meaningful practices and meaning-giving perceptions; it is a general, transposable disposition which carries out a systematic, universal application-beyond the limits of what has been directly learnt-of the necessity inherent in the learning conditions (Bourdieu, 1984:170).

[T]he system of dispositions that the agents have acquired by internalizing a determinate type of social and economic condition (Bourdieu as cited in Wacquant, 1989:40).

According to these conceptualizations, habitus is compounded by dispositions. Bourdieu notes that dispositions: "denote a manner of being, a habitual state (especially of the body), and, in particular, a predisposition, tendency, propensity or inclination" (Bourdieu, 1977:67-68). For Jenkins (1992:76), dispositions can be understood as attitudes.

Bourdieu's concept of habitus is complex but probably an easier way to identify habitus is through people's tastes (preferences). In addition, habitus might be manifested in "ways of standing, speaking, walking, and thereby of feeling and thinking" (Bourdieu as cited in Reay, 2004:4).

In simpler terms, the concept of habitus refers to the set of dispositions that individuals have developed by incorporating in their minds and bodies the socioeconomic circumstances that have shaped their existences. Person's dispositions are manifested in his/her preferences, tastes, attitudes and courses of action. Thus, dispositions reveal that the formation of a person's actions and attitudes are not separated from the socioeconomic circumstances in which they live.

Unlike Sen's capability approach, the importance of human agency in Bourdieu's theory has been subject to considerable debate. Some scholars have interpreted Bourdieu's work as determinist for the strong emphasis placed on the influence of structural constraints (Jenkins, 1992). Conversely, some other researchers state that Bourdieu's ethnographic investigation offers a theory of practice which takes into account agency, resistance and social change (Harker, 1984:122). On this matter, a subtle consideration is made by Bourdieu regarding the possibility of resistance in situations of cultural or class domination:

I cannot begin to comprehend how relations of domination, whether material or symbolic, could possibly operate without implying, activating resistance. The dominated in any social universe, can always exert a certain force, inasmuch as to belong to a field means by definition that one is capable of producing effects in it (if only to elicit reactions of exclusion on the part of those who occupy the dominant positions) (Bourdieu as cited in Wacquant, 1989:36).

In Bourdieu's view individuals who are subordinated in some dimension of their lives are capable of exerting resistance or using a specific strength in a similar way as persons are able to generate some effects in a field. However, it seems that for Bourdieu the opposition on the part of the subordinated people merely can create responses of exclusion from persons who have more power or authority.

Finally, it can be argued that Bourdieu does not disregard the existence of choices but he seems to embrace the view that freedom to choose is more an illusion than a reality. It appears that Bourdieu is less confident on the scope of human action and resistance in bringing about change and in transcending the cultural heritage and social norms of the social context.

*Main criticisms: determinism, unconsciousness and lack of freedom*

Despite being very influential Bourdieu's theoretical statements have been questioned by several scholars. For Jenkins (1992), Bourdieu's arguments are rather deterministic. In the same argumentative line Reay (2004), mentions that the concept of habitus has been questioned due to its latent determinism. Certainly, it is

problematic trying to explain persons' dispositions, tastes (preferences) solely as a result of their social condition.

On this matter, Li Puma points out that Bourdieu's theory does not explain why individuals with the same socioeconomic conditions do not always follow equal practices or why they behave differently (LiPuma as cited in Nash, 1999). Certainly, there are other factors (e.g. gender, ethnicity, nationality, genetic traits and so on) that could influence people's actions.

Another relevant point for discussion is the assumption that habitus operates at an unconscious level (Reay, 2004). According to Sayer, "Bourdieu's focus on the unconscious and the pre-reflexive do not allow for any ethical dimensions of the habitus" (Sayer as cited in Reay, 2004:438). However, Jenkins has argued that certain degrees of conscious may exist in Bourdieu approach: "it is equally clear that consciousness must be involved: speech for example, is a complicated process which involves a full range of mental/intellectual operations, both conscious and unconscious [Consequently] it is difficult to know where to place conscious deliberation and awareness in Bourdieu's scheme of things" (Jenkins, 1992:77).

### **2.3.3 Class differences on preferences: taste for necessity?**

In the book 'Distinction: A social critique of the judgment of taste', Bourdieu discusses deeply about the tastes (preferences) of persons from more disadvantaged backgrounds by using the idea of 'taste for necessity'. In doing so, Bourdieu asserts that necessity means for working class individuals a deficiency of essential goods which has a considerable impact on their tastes and choices:

Necessity imposes a taste for necessity which implies a form of adaptation to and consequently acceptance of the necessary, a resignation to the inevitable; a deep-seated disposition which is no way incompatible with a revolutionary intention, although it confers on it a modality which is not that of intellectual or artistic revolts (Bourdieu, 1984:372).

For Bourdieu, the tastes and preferences of working class people are defined by material constraints. Their choices for the daily organization of life tend to be more

pragmatic and functional and less aesthetical than the choices made by elite groups. Besides, due to adaptation to economic disadvantage, working class individuals mainly seek to guarantee the necessary goods for living. In Bourdieu's view it is not unusual that economically deprived people spend their money on the 'cheap and long-lasting' alternatives. Bourdieu claims that this pattern of decision making is valid even when 'non-rational' choices are taken into account:

Even the choices which, from the standpoint of the dominant norms, appear as the most 'irrational' are grounded in the taste of necessity plus, of course, the entirely negative effect of the absence of information and specific competence which results from the lack of cultural capital (Bourdieu, 1984:379)

Unlike Sen and Nussbaum, Bourdieu identifies very detailed differences on the preferences, choices and practices of individuals from different social backgrounds. Thus, class variations in terms of lifestyles, practices of consumption, topics of conversation, the organization of the home environment, and even in the time and interest devoted to preserve health and personal care are discussed by the sociologist (Bourdieu, 1984:375-381). By way of illustration, Bourdieu states that individuals from more advantaged classes are more inclined to attend and to talk about exhibitions, theatres, concerts and cinema as opposed to individuals from less advantaged backgrounds who show lower interest on these kinds of cultural activities. However, Jenkins (1992) criticizes how Bourdieu explain the tastes (preferences) of working class people, especially the observation that they seem to lack aesthetic choices.

As it was mentioned earlier, according to Bourdieu's theory, socioeconomic circumstances explain differences in the tastes (preferences) of individuals from all social classes. Nevertheless, it can be argued that factors such as history, language, environment and individual agency can influence the preferences and choices of poorer people and not only their need for material goods. As it happens with all human beings, the needs of deprived people go beyond survival needs.



## **2.4 Integrating Sen's and Bourdieu's approaches**

This chapter turns now to articulate some analytical proposals grounded in the capability approach with key ideas and concepts of the theory of sociocultural reproduction. This aspect seems to be complex because issues which are to some extent taken for granted in philosophical and economic literature (freedom of choice, individuals' preferences and human agency) have been more controversial and much disputed subjects for the sociology of education. Thus, some insights derived from the capability approach may be problematic for some sociological lines of reasoning.

The capability approach is a normative social philosophy which gives emphasis to fostering persons' freedoms and agency. Sen's insights applied to the field of education can contribute to (re)formulating educational goals. Drawing on the capability perspective, educational aims should include the expansion of human freedom as well as promoting human agency which is understood as individuals' ability to freely pursue their own goals and to generate change. The capability approach argues that capabilities and agency are both intrinsically and instrumentally relevant for human development.

In line with Sen's approach, capability and agency can be either means or ends of educational endeavors. In other words, capability and agency can be either educational outcomes or factors which can affect educational success. Nevertheless, the role of freedom to choose on educational attainment, which is a less explored topic on studies discussing issues of education and capabilities, will be empirically investigated in subsequent chapters of this dissertation.

Sen's capability approach is a useful perspective while examining issues of equity, justice and inequalities at any level of education. When analysis of inequalities in education is based on capability dimensions, understanding of individuals' educational experiences is expanded (Flores-Crespo, 2005; Walker, 2006 and Wilson-Strydom, 2016). For instance, Flores-Crespo (2005) and Walker (2006) develop capabilities lists in the context of higher education. Flores Crespo's list includes seven central capabilities, which are classified in two categories: personal and professional. Walker's list includes six basic capabilities: practical reason;

knowledge and imagination; learning disposition; social relations and social networks; respect dignity and recognition, emotional health. Wilson-Strydom (2016) extends Walker's capability list by including language competence and confidence as another key capability.

It is worth noticing that exploring inequality in terms of capabilities does not disregard that the recognition of individuals' characteristics related to class, gender, ethnicity, sexuality and race –emphasized by Fraser (2000) - can be taking into account. However, for Sen (2000), it is important to not conceive human beings as only belonging to one specific group, for example a social class group, because it might embrace a restrictive view of person's identity. As Sen (2000) notes:

A person belongs to many different groups (related to gender, class, language group, profession, nationality, community, race, religion and so on), and to see them merely as a member of just one particular group would be a major denial of the freedom of each person to decide how exactly to see himself or herself. (Sen, 2009:246-247).

Furthermore, unlike Sen's capability approach, the relevance of human agency is contested in Bourdieu's theoretical schema. As it was commented earlier in this chapter, some scholars have argued that Bourdieu does not disregard human agency; whereas, there is another group of academics interpreting Bourdieu's views as determinist with almost no chances for agency, freedom and rational choices. It can be argued that Bourdieu does not neglect the possibility of resistance in situations of domination, neither that he disregards chances for rational reflections nor that he is completely indifferent to issues of human agency, however, Bourdieu's strong emphasis on the influence of material and cultural constraints on individuals' actions, decisions and behavior leads to a less confident view regarding the impact of rationality, agency and resistance.

In spite of the different views on individual agency, Sen and Bourdieu are both primarily concerned about the effects of deprivation on individuals' choices and preferences. Sen's concept of adaptive preferences and Bourdieu's notion of taste for necessity are complementary notions and they contribute to our understanding of

how adaptation to the social norms and deprivation impacts on the decisions made by individuals from less advantageous backgrounds.

Bourdieu explores the determinants of preferences and choices through the concept of habitus. Bourdieu states that individuals internalize material and cultural conditions which determine their tastes, attitudes and aspirations. Thus, for Bourdieu cultural and economic factors determine individuals' decisions. The extent to which objective circumstances affect subjective dimensions and how it varies according to contexts and throughout time are issues which might deserve further discussion. On this matter, a greater focus on longitudinal studies might produce interesting findings that account more for the long-term variation of educational decisions.

Some scholars working within the capability perspective have theorized about a variety of limitations in educational decisions in the context of widening participation in tertiary education in Great Britain (Bridges, 2006 and Watts, 2009). For instance, Bridges (2006) identifies natural, socioeconomic and political limitations, lack of rationality and the existence of socially fixed expectations as potential constraints of educational choices. These proposals complement Bourdieu's analysis on the effects of material constraints on choices.

In addition, education can play very different roles according to Sen and Bourdieu. For Sen, education promotes human development throughout the expansion of people's capabilities (freedoms) whereas for Bourdieu the main role of schools is the reproduction of social inequalities. In seeking to integrate such contradictory views it is useful to refer to the work of Walker and Boni (2013). By a way of illustration, Walker and Boni (2013:1) argue that debate is required to define the goals of higher education; however they emphasize that: "Universities everywhere have the potential to act for reproductive or transformative ends". This observation may apply to other educational levels (primary, secondary and/or tertiary education) which can perform any of these two purposes. However, in order for education to have more chances of succeeding in the attainment of transformative instead of reproductive roles the provision of good quality schooling is indispensable.

Thus, Sen's strong emphasis on fostering freedoms and agency provides important insights for defining educational goals. This view can be complemented with Bourdieu's insights regarding the conditions which might affect the achievement of this purpose throughout education. Schools can contribute to enhance persons' freedom to choose, rationality and agency, but they also have the potential for maintaining social differentials (e.g. by preserving differences in the cultural capital that individuals have received from their parents and by conducting social selection practices). Therefore, some economic literature should be more attentive to how and where these unfair educational processes are manifested.

To sum up, Sen's and Bourdieu's perspectives provide conceptual tools to analyse inequalities in education and to understand more deeply the influence of structural and agency related factors on individuals' decisions to pursue higher levels of education in the Mexican educational system. In the next paragraphs, the main arguments of more contemporary social stratification perspectives will be discussed.

## **2.5 Contemporary sociological perspectives**

An important objective of this dissertation is to analyse the role of social background on individuals' capacity to achieve higher educational transitions and institutional location using national survey data for Mexico. Because Sen's capability approach does not explain macro-level patterns of social differentials in educational attainment at the system level; this section examines contemporary sociological approaches which deal with these issues. These perspectives are: the sociological version of the rational choice theory, which is also called rational action theory (RAT), (Breen and Goldthorpe, 1997 and Goldthorpe, 2010, 1998), the maximally maintained inequality approach (MMI) (Raftery and Hout, 1993), and the effectively maintained inequality perspective (EMI) (Lucas, 2001).

Contemporary social stratification theories (RAT, MMI and EMI), like the classical theory of cultural reproduction, offer insights on why class differentials in education might persist. However, there are subtle differences among these approaches. For Lucas and Beresford (2010), what mainly distinguishes EMI from MMI and RAT is that the former is formulated as a theory of action which explains how social class

groups maintain advantages in education. So, EMI emphasises the role of collective action on quantitative and qualitative dimensions of inequality whereas MMI is merely concerned with explaining patterns of class differences in educational attainment.

Furthermore, even though the rational action theory can be applied to analyse a broad range of individual educational decisions, this theory strongly relies on class-related explanations of human behaviour and action. As Goldthorpe (2010:324) notes: “educational decision-making remains conditioned by the class situation in which it takes places”. Further discussion on the similarities and sources of differentiation among classical theories and social stratification approaches is presented in the next lines.

### **2.5.1 Rational action theory**

The sociological version of the rational choice theory emerged with Boudon’s (1974) work on the influence of social class on educational attainment. This perspective has been subsequently developed by Breen and Goldthorpe (1997) and Goldthorpe (1998).

Boudon (1974) distinguishes between primary and secondary effects of social class in educational attainment. Primary effects express the extent to which social origin affects academic ability, whereas secondary effects are manifested in the educational choices made by individuals of different social classes. Boudon’s secondary effects of stratification are neatly explained by van de Werfhorst *et al.* (2003:44)

For Boudon, the costs and benefits associated with each educational option vary with social class because ambition is relative to the social starting point of an individual. So, a working-class child who wants to be a lawyer must be more ambitious than a middle-class child who wants to be a lawyer. Therefore, high prestige educational options may be essential in avoiding social demotion for middle-class pupils, whereas working-class pupils can avoid social demotion without pursuing such options. On Boudon’s analysis, this leads to middle-class pupils being more likely to pursue such options than working-class pupils at any given level of ability.

Similar to Boudon's approach, Breen and Goldthorpe (1997) recognize two different influences of social origin; however, they offer a broader explanation of the secondary results of stratification:

The model represents children and their families acting in a (subjectively) rational way, i.e. as choosing among the different educational options available to them on the basis of evaluations of their costs and benefits and of the perceived probabilities of more or less successful outcomes (Breen and Goldthorpe, 1997:620).

For Breen and Goldthorpe (1997: 615-617), the rational choice theory relies on three main assumptions of human behaviour: educational choices are influenced by the aversion to be downward mobile; decisions are influenced by ability and the expectations of success or failure considering the own academic performance; and actions are based on economic considerations.

According to this theory, social class differences in educational opportunities remain mainly because individuals' educational decisions are led by the concern of not descending their original social position. Therefore, the sociological rational choice perspective unlike the one developed by economists, seems to assume that individuals are to some extent more cautious than ambitious actors. Related to this consideration, Breen and Jonsson (2005:227), note that the main source of differentiation between the economic formulation of the rational choice perspective and the sociological version is that sociologists recognize uncertainty in educational decision-making and this might seem by an economist as "myopia into the decisional making process".

In addition, a valuable aspect of the rational action theory is that it assumes that individuals consciously make decisions. On this matter, the rational choice theory coincides with Sen's capability approach but it differs from cultural reproduction theories which consider that individuals are not always conscious of their actions and choices (Bourdieu and Passeron, 1977, Bourdieu, 1984).

However, there are limits as to how far the idea of rationality can be taken. For the rational choice perspective, rationality seems to be limited to social and economic

calculations. It can be argued that the reasons that people have for action might well go beyond that of their awareness of the socioeconomic considerations involved in decision making. Sen (1977) criticises the behavioural foundations of the rational choice theory by pointing out that human behaviour is not entirely determined by pursuing self-interest but it might also be influenced by moral and ethical commitments.

Finally, although it is not the intention of this chapter to fully discuss what it means to be rational, it is worth highlighting that the idea of rationality differs among disciplines; some economists tend to conceive it in terms of pursuing economic interest (rational choice theory), some others in terms of human development (the capability approach) and for a branch of sociology as the extent to which individual actions pursue preserving social positions and/or reaching social mobility (the sociological version of rational action theory).

### **2.5.2 Maximally maintained inequality**

The maximally maintained inequality approach was formulated by Raftery and Hout (1993) in order to describe long-term trends of the evolution of social inequalities in the Irish educational system. Although their generalizations were constructed using empirical evidence for the case of Ireland, this perspective has contributed to understand patterns of social backgrounds effects in educational attainment in different contexts.

The main argument of the maximally maintained inequality approach is that social inequalities in the chances of attaining a given level of education are maintained until that level is saturated from individuals of the higher social backgrounds. Once this saturation occurs, the probabilities to enter that level of education for individuals from lower social backgrounds start increasing. According to this perspective, more equality of educational opportunity can be achieved by expanding the capacity of educational systems to attend students (Raftery and Hout, 1993).

Nevertheless, it appears that the maximally maintained inequality perspective is not a theory that can provide explanations of the causes of social inequalities. In the authors' own words:

Maximally maintained inequality describes the patterns we have observed in Ireland and generalizes those patterns but it does not explain them (Raftery and Hout, 1993:57).

Therefore, Raftery and Hout (1993) rely on assumptions from the rational choice theory to provide explanations of the empirical findings. Raftery and Hout's work is a good illustration of how macro-level statements describing trends of social background effects on educational attainment can be complemented with micro-level explanations.

### **2.5.3 Effectively maintained inequality**

As an alternative framework to understanding the influence of social background on educational attainment, Lucas (2001: 1652) offers the theory of effectively maintained inequality. The central argument of this perspective is that individuals from more affluent social origins are in a better position to retain their privileges in schooling than those persons from other backgrounds. More specifically, this is how Lucas formulates the main assumption of this perspective:

Effectively maintained inequality posits that socioeconomically advantaged actors secure for themselves and their children some degree of advantage wherever advantages are commonly possible. On the one hand, if quantitative differences are common, the socioeconomically advantaged will obtain quantitative advantage; on the other hand, if qualitative differences are common the socioeconomically advantaged will obtain qualitative advantage (Lucas, 2001: 1652).

Unlike the maximally maintained inequality perspective, the effectively maintained inequality approach states that educational expansion will not be the unique requirement to reduce social inequalities in education. According to this perspective, even if social differences in access to education are reduced or eliminated, social inequalities are preserved on qualitative aspects of schooling; for example, on the kind of education and/or in the quality of educational outcomes:

It may be that as long as a particular level of schooling is not universal (e.g., high school completion throughout the first half of the 20th century in the United States), the



socioeconomically advantaged use their advantages to secure that level of schooling. Once that level of schooling becomes nearly universal, however, the socioeconomically advantaged seek out whatever qualitative differences there are at that level and use their advantages to secure quantitatively similar but qualitatively better education (Lucas, 2001:1652).

A merit of Lucas' arguments is the emphasis on generating understandings of macro-level patterns of social inequalities not merely in access to a given educational level but in the quality of education that can be attained. However, it appears that for Lucas, such patterns are generated exclusively by the actions or the advantages of one social group: the elite class and nothing is said about the actions of individuals belonging to other groups. For Lucas, the opportunities to succeed in education are determined by structural factors whereas capability and agency-related dimensions are unexplored.

Effectively maintained inequality has potential for illuminating some macro-level patterns of social differences in educational attainment in countries which exhibit great heterogeneity in the quality of education provided by institutions. This may be the case of the upper secondary system of Mexico.

Finally, contemporary sociological perspectives such as MMI and EMI extend the Bourdieu's analysis about the role of social origin in education. More specifically, maximally maintained inequality explores social background effects in educational attainment and it adds a new dimension: the level of educational expansion. While, effectively maintained inequality takes into account issues of educational expansion and it pays strong emphasis on qualitative differences in education. Finally, rational action approach explains the role of social background in educational choices and it provides valuable arguments to understand social and educational mobility.

## **2.6 Applying the theoretical framework for analysing educational transitions in Mexico**

The main aim of this thesis is to examine factors that have an influence on individuals' capacity to achieve higher educational transitions in Mexico. Sen's

theory provides insights on the extent to which capability and agency-related factors may have an impact on persons' decisions to pursue higher levels of education whereas Bourdieu's theory help to understand the constraints imposed by structural factors on individuals' dispositions, actions and educational opportunities. From an economical/political philosophy such as the human development perspective it is intrinsically valuable for individuals to have freedom to make educational choices such as deciding to pursue higher educational levels, the type of institutions they prefer to attend and their preferred school. While the cultural reproduction theory offers a structuralist interpretation of choices. To be specific, for this perspective, persons' educational decisions are not freely made because they are determined by socioeconomic and cultural constraints.

In Mexico, it is complex describing the extent to which individuals have freedom to choose in several aspects of schooling, especially at the system level. For instance, it is not commonly disclosed in survey data 'who makes key educational decisions' such as the choice of school, or the extent to which individuals' educational decisions are autonomous or are determined by socioeconomic circumstances. To be specific, when analysing the institutional differentiation of upper secondary education individuals are not completely assigned to the institutions nor are individuals completely autonomous to decide the type of institution in which they would like to study. Further discussion on this aspect is presented at the end of chapter three.

In this study, Sen's capability approach and Bourdieu's theory of sociocultural reproduction are applied to examine educational transitions. Drawing on literature from the capability approach some dimensions of the concepts of capabilities and agency will be operationalized using survey data for Mexico. More specifically, individuals' freedom/power to choose school will be understood as a dimension of human agency (Ibrahim and Alkire, 2007). Besides, in line with Hart (2013), individuals' aspiration for university education will be conceptualized as a functioning of the capability to aspire.

Moreover, drawing on literature from the theory of sociocultural reproduction, the concept of cultural capital is operationalized using data on the highest level of education of parents. In line with Bourdieu (1997) parental education is used as an indicator of individuals' cultural capital and social origin. It is worth highlighting that all these dimensions are included as explanatory variables in the statistical models exploring the probabilities of achieving higher school transitions in Mexico. Further discussion on the merits and limitations of these variables is presented in the methodological chapter of this dissertation (see chapter four).

Finally, drawing on the capability approach, the theory of sociocultural reproduction and on more contemporary sociological perspectives on educational inequalities, this dissertation will be guided by ten hypotheses which provide tentative explanations for the low levels of participation in upper secondary and tertiary education in Mexico.

### **Research hypotheses**

#### *Hypotheses from the capability approach:*

1. Individuals' capacity to achieve higher educational transitions in Mexico is influenced by human agency dimensions such as the degree of freedom/power to choose over educational-related aspects. If individuals have more freedom/power to make educational decisions, such as selecting the type of institution to study, they are more likely to attain higher levels of education.
2. In Mexico, education is both intrinsically and instrumentally valued by individuals. Persons are able to participate, remain and complete upper secondary and higher education because they reasonably think that their well-being and freedoms can be enhanced by reaching higher levels of education.

#### *Hypotheses from the sociocultural reproduction theory*

3. Individuals' opportunities to attain higher educational transitions in Mexico are influenced by structural factors such as socioeconomic and cultural resources. Persons from more advantageous social origins are more likely to participate in

upper secondary and higher education because their wealthier living conditions allow them to stay longer in schools.

4. The underrepresentation of people from lower social backgrounds in upper secondary and tertiary education in Mexico is explained by persons' lack of the appropriate cultural capital to succeed in schools. This occurs because the Mexican education system tends to accept and promote the type of culture of the elite groups so only those individuals who have access to the 'suitable' cultural capital are capable of making progress in the educational career.

*Hypothesis from the rational action theory*

5. Individuals make rational calculations regarding the opportunities of succeeding in reaching higher educational transitions in the Mexican educational system in a way that they weigh the costs and benefits associated to each decision, take into account their academic performance and try to avoid uncertain events which may hamper their chances of moving ahead in the curriculum. To be specific, if persons perceive economic benefits -present and/or future- for attending schools; if they achieve higher levels of academic performance than their counterparts and if they do not face uncertain life events that may hinder their educational trajectories, then they are more likely to reach higher educational levels.

*Hypothesis from the maximally maintained inequality approach*

6. In Mexico, there are strong and persistent effects of social background in the chances of participating in secondary and tertiary education because these educational levels are not universal, although they have experienced a process of expansion. Individuals belonging to elite groups have not reached full access to any of these levels; therefore, other less advantageous social groups still do not have enough opportunities for getting access to them.

*Hypothesis from the effectively maintained inequality approach*

7. In the Mexican context, macro-level patterns of social differences in educational attainment occur because people from higher social backgrounds use their socioeconomic advantages to attain higher school transitions and to enter high quality institutions. By having access to a high quality institution in one stage, individuals from higher social backgrounds are more likely to enter high quality schools in subsequent educational paths

*Hypothesis from the effectively maintained inequality perspective and the capability approach.*

8. After implementing the educational reforms that started in 2008 and the new regulation of 2011, which made upper secondary education compulsory for all individuals in Mexico, this educational level has constantly expanded. However, upper secondary education is not universal which contributes to generate macro-level patterns of social differences in quantitative and qualitative aspects of schooling. This occurs because persons from elite groups use their privileged socioeconomic positions and exert higher degrees of freedom to choose over school-related aspects in order to attain better educational outcomes.

It must be emphasised that due to data availability, this thesis will only be able to provide some indications to test four hypotheses: 1, 3, 5 and 7. It is expected to confirm, reject or extend these assumptions in light of the empirical evidence. Certainly, more research is required to determine the efficacy and validity of the other hypotheses.

## **Chapter 3 Empirical literature on educational transitions**

### **3.1 Introduction**

The main purpose of this thesis is to examine educational transitions in the Mexican context. This chapter integrates studies which explore social inequalities in educational transitions in order to trace the progress of this area of knowledge, to gain methodological insights, to identify gaps in this literature and to contextualize this dissertation. A great deal of research in this area, carried out in developing and developed countries, is concerned with similar issues. Therefore, literature reviewed in this chapter will cover studies conducted in different countries around the world during recent decades.

The main focus of this chapter is to examine empirical studies applying quantitative methods although some pivotal research using qualitative methods is also reviewed. Three key aspects of these investigations are commented: methodologies, main findings and theoretical frameworks. Throughout the chapter, investigations will be organized combining thematic and chronological criteria (see Table 5). It is worth noticing that in the last section of this chapter, a more critical discussion of all these studies taken together is presented and more importantly, it is specified how this thesis contributes to filling several gaps in this area of knowledge (see section 3.6).

### **3.2 Social inequalities in educational transitions**

During the past three decades inequality of educational opportunities has been studied by many researchers using models of school transitions. A seminal study in this area is the works of Mare (1980, and 1981). At the time that Mare (1981) wrote his studies, two approaches were prevalent for assessing inequalities in education: linear regression models to examine inequalities in terms of years of schooling and linear models of highest grade completed. However, Mare (1981:83) argued that linear models are limited because they do not show how educational opportunities are assigned among social groups.

In order to overcome the methodological constraints, Mare (1981:74) conceptualizes educational attainment as “a sequence of transitions between grades” and he uses logistic regression techniques to estimate individuals’ probability to attain each school transition conditional on having completed the previous educational stage. For Mare (1981), an advantage of the logit estimators is that they demonstrate how formal education is sorted among different groups at different levels in the educational career. In another seminal study, Mare (1980) applies logistic regression models to better understand the influence of social background on school continuation decisions from a sample of American men. Mare founds that the influence of socioeconomic variables decrease across educational transitions.

Overall, Mare’s contribution has been highly valued by the community of social stratification researchers. Defining educational attainment as a sequence of educational choices is a useful approach to evaluate not just the effects of social background but also the role of some other factors at different educational stages. As a result of their advantages, logistic regression models of school transitions have been widely used in many studies over the years. One of its most notable applications is the work conducted by Shavit and Blossfeld (1993).

Shavit and Blossfeld (1993) edited a comparative study on education and social stratification, titled: *Persistent inequality: changing educational attainment in thirteen countries*. The overarching aim of this study is to explore variations over time of the influence of social background on educational attainment in thirteen industrialized countries. In line with Mare’s (1980, 1981) work, all studies included in the book use logistic regression models to evaluate inequalities in school transitions. One of the main findings is that for the majority of the countries which participated in the report, the influence of social background was substantially greater in earlier school transitions than in subsequent educational phases.

Certainly one of the strengths of this book is that the editors successfully bring together research efforts from different industrialized regions in the world. As a result they obtained comparable educational data and their findings added significant knowledge in the field of education and social stratification. However, Shavit and

Blossfeld's comparative study would have been far more interesting if the authors had included one study case of a Latin American country because, according to Lopez-Calva, *et al.* (2015:319) "Latin America continues to be the most unequal region in the world".

The international trends in educational inequalities identified by Shavit and Blossfeld deserved much more scrutiny. This study raises many questions such as what are the reasons for the persistent levels of social differentiation over the years. What are the underlying factors that might explain variations among countries? Thus, it was necessary to offer explanatory arguments. The study developed by Raftery and Hout (1993) for the case of Ireland provides some arguments which have been useful to understand trends in educational inequalities in different contexts (see chapter two). Furthermore, the application of logistic regression techniques for examining inequalities in educational transitions, which is the main methodological strategy adopted in several studies (Mare, 1981; Shavit and Blossfeld, 1993; Raftery and Hout, 1993), has been extended in recent years by a number of writers such as Breen and Jonsson (2000) and Lucas (2001).

Breen and Jonsson (2000) wrote a well-known critic to the sequential model of school transitions. By noticing that the educational systems of many countries provide multiple and different educational options the authors question the hypothesis that individuals' educational trajectories are always manifested as a set of binary choices. Therefore, they recommend using multinomial logistic regression models in order to take into account the institutional characteristics of educational systems.

Breen and Jonsson make a significant contribution to the field of education and social stratification by offering a methodological strategy for the analysis of school transitions. Multinomial logistic regressions can be used to examine the chances to attain diverse educational paths in educational systems such as in Mexico. Similar to Sweden, the upper secondary level in Mexico provides diverse institutional environments for students and there is selection practices based mainly on previous academic performance.



Another relevant investigation in the field of education and social stratification was developed by Lucas (2001). Similar to Breen and Johnson (2000), Lucas states that individuals' decisions to pursue higher levels of education are not totally dichotomous because persons also have to choose their position among different educational alternatives (Lucas, 2001:1651). In his investigation, Lucas uses ordered probit regression models to examine persons' transitions through different stages in American high schools. Lucas found that: "[...] the effects of social background occur in at least two ways: (1) they determine who completes a level of education if completion of that level is not nearly universal, and (2) they determine the kind of education persons will receive within levels of education that are nearly universal" (Lucas, 2001: 1681). Table 5 shows a summary of the main features of all these studies as well as of the investigations discussed in the next paragraphs.

Other scholars have been interested in exploring conditional and unconditional inequalities in educational transitions. Rijken *et al.* (2007) explore changes over time of the influence of social origin on the chances to attain the last stage of education and the extent to which the tracking system (vocational and academic institutions) affects educational inequalities. Similarly, Tieben and Wolbers (2010) examine the influence of socio-demographic factors on the chances to attend at different tracks at postsecondary education in the Netherlands. The results indicate that elitism in enrolment to high status institutions have continued over the years in tertiary education but conversely the strength of the association between social origin and entrance to low status institutions have reduced over time.

Iannelli, Gamoran and Paterson (2011) investigate the evolution of inequalities in enrolment in the higher educational system in Scotland from 1987 to 2001. Iannelli, Gamoran and Paterson, use data from the Scottish School Leavers Surveys, 1984-2002. The main results show that social background effects on the chances to enter tertiary education decreased during the period analysed. Iannelli, Gamoran and Paterson (2011:773), note that more people from disadvantaged backgrounds enrolled in less prestigious institutions whereas, the most prestigious institutions become more elitist which, according to the authors, corroborate the main statements of the theory of effectively maintained inequality. Finally, the authors identify a gap

in the literature by saying that “there is a need for more analysis of expansion and differentiation within countries” (Iannelli, Gamoran and Paterson, 2011:720),

To investigate changes over time in social class differences on individuals’ decisions to enrol in upper secondary education as well as on the type of school attended in Italy was the purpose of Panichella and Triventi (2014)’s research. Their findings suggest a significant reduction on inequalities in access at upper secondary education (vertical inequalities) but social class differences on track placement (horizontal inequalities) increased over time in Italy.

Torche (2010) investigates conditional and unconditional inequalities in educational attainment in four Latin American countries: Brazil, Chile, Colombia and Mexico during a period of economic crisis. Torche was able to show that social inequalities in the chances to complete primary and to enter secondary education declined over time. The results are different for subsequent transitions since socioeconomic differences on the opportunities to complete upper secondary education and get access to postsecondary levels of schooling increased for cohorts born after the 1980s. The author highlights a gap in this field of study by saying: “More research on Latin America and other developing countries is necessary to further understand the mechanisms driving educational stratification around the world.” (Torche, 2010:107)

Similar to Torche’s (2010) research, Marteleto, *et al.* (2012) examine social background effects on young people’s educational opportunities in four Latin American countries: Brazil, Chile, Mexico and Uruguay during a period of economic crisis (from the 1980s to the late 2000s). More specifically, Marteleto and collaborators investigate patterns of inequalities in school transitions: enrolment and completion of primary education and enrolment in high schools. Marteleto *et al.* (2012:14) identify reductions in inequalities in transitioning to high schools in Brazil and Chile: whereas, for the cases of Mexico and Uruguay, the influence of social background in access to high schools has remained stable.

It is worth noticing that Torche (2010) explores inequalities in school transitions but does not examine the extent to which social background is associated to students’

institutional placement. On this matter, it is not entirely clear why Torche argues that in the Latin American context there is little track differentiation. Marteleto, *et al.* (2012), examine social inequalities in access to public and private schools in four Latin countries. This is an important strategy to account for institutional differentiation. However, there are some other meaningful sources of differentiation among institutions (e.g. curricular content, prestige/status, regulations, among others) which are well-worth exploring.

To sum up, this section has reviewed some of the existing empirical evidence on social inequalities in the chances of entering a given educational level and/or on the opportunities to move ahead in the education system (see Table 5 for a summary of the main features of these studies). In the next section some of the main drawbacks of the literature on educational transitions are discussed.

### **3.3 Main criticisms in educational transition research**

A classical critique of the sequential model of educational transitions was formulated by Cameron and Heckman (1998). The authors note that selection bias and unobserved heterogeneity are some of the main drawbacks of educational transition research. The term unobserved heterogeneity refers to the variables that cannot be measured or accounted for in the statistical modelling but can make an influence on the empirical results (Breen and Jonsson, 2005). For Mare (1993), some examples of non-measured variables when analysing the effects of social background on school continuation patterns are family income, academic ability, educational aspirations, motivation and expected social and economic opportunities.

To be specific, Cameron and Heckman (1998) challenge the widely-held view of the declining influence of social origin across educational transitions. For these economists, social background's effects decreases for later educational stages due to educational selection. In other words, the sample of individuals that makes higher educational transitions is more homogenous in terms of social background but also in terms of many others characteristics.

Many scholars have replied to Cameron and Heckman's criticisms and have addressed issues of selection bias and unmeasured heterogeneity in their studies (see Lucas, 2001; Buis, 2011; Holm and Jæger, 2011; Karlson, 2011 and Lucas, *et al.*, 2011). For instance, Mare (2011:239), replies to Cameron and Heckman by noticing that before proceeding to correct for 'selection bias' it is important to bear in mind the purposes of each study. Mare argues that the sequential logit model of school transitions can be used for descriptive purposes and therefore not be judged for sample selection bias.

Furthermore, in order to address issues of unobserved heterogeneity, Lucas *et al.* (2011) proposes controlling for time varying covariates (academic performance) at each school transition: similarly, Karlson (2011) address the problem of unobserved heterogeneity by including several explanatory variables, beyond social background, such as peer groups' characteristics. Buis (2011) proposes sensitivity analysis as and Holm and Jæger (2011) use the bivariate probit selection model.

The strategy to address methodological issues for the analysis of educational transitions in the Mexican context is discussed in the next chapter. What follows is an account of a group of studies that explore how school related variables might contribute to reduce or increase inequalities in educational settings.

### **3.4 Inequalities in educational and occupational outcomes: the role of institutional factors.**

The relevance of the investigations commented in the next lines heavily relies on the evidence that individuals' educational and occupational achievements are not solely influenced by social background but also by the institutional environments in which they are situated. Institutions matter because they set up opportunities and limitations for educational and professional development and they also contribute to define rules and conventional behaviours (Breen and Buchmann, 2002).

The main objective of Kerckhoff's research (1993) is to explore the role of institutional factors on educational and work achievements in Great Britain. Kerckhoff notes that not only personal characteristics affects individuals' achievements but also the location of the person in the institutional structure.

Kerckhoff (1993:166) found that the type of institution in which individuals are placed (in elementary school, secondary school, post-secondary school and in the labour force) significantly makes an impact on their attainments which are measured in terms of examinations, qualifications or types of occupations. For Kerckhoff, those students enrolled in high status types of schools and those who are located in high-ability groups usually obtain higher levels of achievements than those students placed in less advantageous locations. Kerckhoff points out that ability grouping affects overall level of achievement and increases inequality of educational opportunities.

In a similar argument, Gamoran (1992) points out that high school tracking makes an impact on educational inequality and on the average level of achievement in the United States. The author explores the effects of tracking on mathematics and verbal achievement using data from the High School and Beyond Survey, 1980 and 1982 for USA. Gamoran's study found that individuals located in academic tracks perform better than those placed in non-academic tracks. Gamoran (1992:826) concludes that the effects of tracking vary according to how it is designed. For instance, if persons have few opportunities of mobility between tracks, it will probably increase educational inequality and it will most likely reduce the overall level of achievement.

In a longitudinal study which set out to assess educational and early occupational outcomes of graduates from vocational secondary education in the United States, Arum and Shavit (1995:201) found that vocational schooling has two different effects: (1) it reduces the chances of getting access to higher education and discourage individuals from "entering the professions and other high prestige occupations" and (2) vocational secondary institutions increase the probability of getting a job for those persons who have not had the opportunity to attend college.

In another investigation, Shavit and Müller (2000) explore the extent to which vocational secondary education impacts labour market outcomes in eleven industrialized countries. Before introducing their study, the authors identify a controversy in the field regarding the role of vocational education around the world: some scholars argue that vocational education serves as a "safety net" since it

reduces the chances of being without a job and there are those who consider that this type of education discourage youngsters from pursuing a degree and therefore it contributes to the reproduction of social inequalities. Shavit and Müller (2000:30) argue that the first group of researchers rely on human capital theories and the second one on theories of class reproduction to support their statements. This thesis will contribute to this debate by exploring the extent to which vocational education promotes or hinder students' mobility across transitions in the Mexican context (see chapter eight).

In Mexico, the influence of technical upper secondary education on occupational outcomes has not been extensively discussed at the system level. However, there is some evidence suggesting that having completed a specific type of technical school (Conalep) does not guarantee getting a job because employers seems to value far more other aspects such as professional experience, results on examinations and individuals' performance during the professional interview (Lara, 2006).

Iannelli (2013) examines the influence of the curriculum studied in secondary education on individuals' opportunities of reaching different social classes at three stages of their life. The main results of this study indicate that the curricular content of secondary schools has a significant impact on individuals' occupational status at different moments of their lives. According to Iannelli (2013:923): "Selective schools, languages, English, mathematics and science subjects had a positive and significant effect on the chances of being in the top social classes and reduced the chances of entering the bottom classes also at early and later stages of respondents' occupational careers".

Van de Werfhorst *et al.* (2003) investigate the extent to which social background and ability influences educational attainment in secondary education and the choices of fields of study in tertiary education in the United Kingdom. The authors found that social class is a strong predictor of educational attainment in the humanities and sciences whereas its effect on social studies is rather minor. In another research, van de Werfhorst and Hofstede (2007) explore the extent to which cultural reproduction and relative risk aversion theory contributes to explain social inequalities in

educational outcomes. This study shows that cultural capital explains variations in school performance in primary and secondary education but, surprisingly, it has no impact on educational ambitions. Nevertheless, relative risk aversion – being worried about descending social mobility- make an impact on individuals' aspirations for schooling (van de Werfhorst and Hofstede, 2007).

To sum up, in this section the role of institutional factors on educational and labour market outcomes was discussed. These factors are the type of institution/school (Gamoran, 1992; Kerckhoff, 1993, Arum and Shavit, 1995 and Shavit and Muller, 2000, van de Werfhorst and Hofstede, 2007) and the type of curriculum (Iannelli, 2013). Moreover, this literature shows that the practice of separating students in groups according to their abilities and knowledge contributes to increase educational inequality. Individuals placed in high-status schools (e.g. academic tracks) tend to obtain higher levels of achievement and are more likely to move ahead in the educational career than those individuals who are located in less prestigious institutions (e.g. vocational schools).

This literature highlights the relevance of analysing institutional factors (type of institution, school type, curriculum and ability grouping) because they have important effects on educational attainment and educational inequalities. In a similar analytical line, this dissertation will explore the effects of the type of institution attended in upper secondary education on the chances to complete upper secondary and the opportunities to enter higher education. Specifically, evidence from Mexico will be provided in order to contribute to the debate on the role of vocational education in educational trajectories. The following section moves on to discuss how some characteristics of the educational systems might influence inequalities in educational settings.

### **3.5 Types of educational systems: institutional arrangements and selection practices**

It is relevant to examine some characteristics of the educational systems because they might have an impact on how individuals gain access to education. By a way of illustration, the institutional practices of selecting and grouping persons for schooling

vary across national borders and they might have diverging effects on educational trajectories.

In previous decades, Turner (1960) proposed a classification of educational systems which became quite popular. Turner introduced the terms ‘contest mobility’ and ‘sponsored mobility’ in order to describe the institutional arrangements for upward mobility in the United States and England respectively. The main purposes of these types of educational mobility are described in the next lines:

Under contest mobility, the object is to train as many as possible in the skills necessary for elite status so as to give everyone a chance to maintain competition at the highest pitch. Under sponsored mobility, the objective is to indoctrinate elite culture in only those presumably who will enter the elite, lest there grow a dangerous number of “angry young man” who have elite skills without elite station (Turner, 1960:863).

For Turner, educational systems characterized as ‘sponsored mobility’ have more control in social selection practices and mobility is conceived as a process of induction supported by members of elite groups. Conversely, in systems of contest mobility many persons compete for achieving higher status and they rely on their own efforts and personal qualities to succeed.

Allmendinger (1989) proposes another approach to differentiate educational systems by taking into account their levels of standardization and stratification. The former refers to the extent to which institutions adopts similar procedures and standards and the latter to the selection procedures in the tracking system. More recently, Pfeffer (2008) refers to a typology of educational systems which comprises three categories: weakly stratified, highly stratified, and very highly stratified systems:

Weakly stratified systems [are those] where most students attend either untracked or tracked comprehensive schools, where between-track mobility is existent even if not necessarily to a great degree, and where access to post-secondary education is not formally predetermined by the choice of one track. Highly stratified systems, in contrast, usually divide students into separate schools of which only one or some types prepare for post-secondary education and



others are ‘dead-end’ pathways that preclude the attainment of higher levels of education, mobility between these schools is very limited. Very highly stratified systems follow the same pattern as highly stratified systems, but select students for different types of secondary institutions at a comparatively early grade level (typically grades 4–5), and these selection decisions are basically irrevocable as mobility between school types is minimal. (Pfeffer, 2008:553-554)

It can be argued that the Mexican educational system shares some characteristics of the highly stratified educational systems described by Pfeffer. This is because upper secondary schools in Mexico do not explicitly prevent students from following tertiary education but institutions considerably vary in terms of their aims, curricular contents and the paths followed by their graduates. For instance, some institutions (e.g. academic traditional schools) are mainly targeted to prepare students for entering universities whereas some others (e.g. technical) have a strong emphasis on preparing students for an early entrance into the labor market. In addition, the Ministry of Education of Mexico knows that it is complicated moving from one type of upper secondary school to another and this is especially difficult when students pursue changing between academic and technological tracks (SEP-SEMS, 2008).

Moreover, in Mexico, the institutional procedures for admitting students in upper secondary education vary among federal states, regions and institutions. For instance, according to the Metropolitan Commission of Public Upper Secondary Education (Comision Metropolitana de Instituciones Públicas de Educacion Media Superior-hereafter Comipems) in the City of Mexico and in 22 municipalities of the State of Mexico (which are the two biggest federal states of Mexico) upper secondary education’s admission process is regulated by Comipems. The admission process comprises three main steps: (1) Individuals must select and order 20 institutions according to their preferences; (2) Individuals require taking an examination which evaluates their prior skills and knowledge; (3) Institutions take into account students’ examination results, as well as schools’ availability of places, before they can formally admit new students (Comipems, 2016).

Similarly, the admission procedures of many public secondary schools located in other federal states of Mexico include evaluating students’ prior skills and

knowledge. This kind of assessment is usually conducted by applying standardized examinations such as the EXANI-I created by the National Center for the Evaluation of Higher Education (Centro Nacional para la Evaluación de la Educación Superior- hereafter Ceneval). However, some types of upper secondary schools implement less strict mechanisms for admitting students. For instance, academic performance is not a strong factor for making the transition from lower to upper secondary education if individuals pursue entering open and distance learning education. Besides, most private institutions do not apply an entrance examination neither do they require higher levels of prior academic achievement so that they can admit new students. Instead, what is required is the certificate of completion of lower secondary education and the payment of tuition fees (Villa-Lever, 2007).

The application of entrance examinations for admitting students in public upper secondary schools may have an impact on educational inequality. Previous research from Mexico has shown that individuals from more disadvantaged social origins have consistently achieved lower levels of results in the entrance examinations than persons from more advantageous social backgrounds (see Sandoval, 2007; Hernandez, *et al.*, 2006; Tirado, 2004).

### **3.6 Final comments**

Research on inequalities in education has an extensive history. During the last decades, social stratification researchers have contributed to identify macro-level patterns of social inequalities in education across many national borders. A common finding identified in educational transition research is that social origin effects are stronger in earlier educational stages than in subsequent school phases (Mare, 1981; Shavit and Blossfeld, 1993 and Lucas, 2001). However, some literature has emerged that offers contradictory results about this topic (see Holm and Jæger, 2011; Buis, 2011).

Another frequent finding suggests more pronounced levels of social inequalities in entrance at more prestigious institutions than in access at less advantageous tracks in upper secondary and tertiary education (see Rijken *et al.*, 2007; Tieben and Wolbers, 2010; Iannelli, Gamoran and Patterson, 2011; Karlson, 2011; Panichella and

Triventi, 2014). Taken together these studies illustrate that in spite of the expansion of educational opportunities over the years, access to high status institutions continues being predominantly for elite groups. Besides, the policy initiatives offered by many governments were limited to alter historical persistent patterns of class inequalities in educational settings (Shavit and Blossfeld, 1993).

Regarding the use of theories, over the past decade numerous studies have emphasized the applicability of the effectively maintained inequality approach (see Lucas, 2001; Panichella and Triventi, 2004; Tieben and Wolbers, 2010; Iannelli, Gamoran and Paterson, 2011, Karlson, 2011). What mainly distinguishes this perspective is that it provides insights on why class inequalities in education are historically preserved in contexts with higher levels of educational coverage. Some research empirically test assumptions of Bourdieu's socio cultural reproduction theory and Breen and Goldthorpe's rational action theory (van de Werfhost and Hofstede, 2007 and van de Werfhorst *et al.*, 2003). In general, this area of knowledge embraces a strong socioeconomic determinism. Their emphasizes on assessing the effects of social origins on educational progress and achievements often overlook the influence of persons' and schools' capacities to undertake different courses of actions which might lessen the influence of social origin.

In spite of the important developments identified in this field of inquiry, there are some knowledge gaps and ongoing controversies which might deserve further attention. For instance, some authors note that more research is required on educational expansion and institutional differentiation within nations (Iannelli, Gamoran and Paterson, 2011). Similarly, Torche (2010) and Marteleto, et. al (2012) state that further work needs to be done to examine inequalities in school transitions and especially issues of tracking in Latin American countries. Besides, Shavit and Muller (2000) highlight that debate continues in the sociology of education regarding the effects of vocational education and the role of tracking in educational and occupational mobility.

This dissertation provides an important opportunity to advance our knowledge on these aspects by discussing additional evidence on the factors influencing

educational transitions and institutional location in upper secondary education with respect to the Mexican case. These issues have not been sufficiently addressed in Mexico mainly due to the lack of national representative data and longitudinal data.

It is worth noticing that the majority of the reviewed studies on educational transitions focuses on analysing the chances of entering at a given level of school but less attention has been paid on analysing the opportunities of completing an educational level instead of dropping out (see Table 5). In order to make a contribution to the analysis of the dropout phenomenon this dissertation will examine the probabilities of completing upper secondary education instead of dropping out, as a single school transition. The other school transitions of interest are access to upper secondary education and access to higher education.

For Lucas (2001) it is important to incorporate the dropouts in the analyses of school transitions because dropout from school it is a pathway that individuals may enter: “When viewed through the lens of the education transitions tradition, however, deleting dropouts from the analysis is problematic. Instead, given the logic of educational transitions, research on track mobility can treat dropout as an important absorbing state or destination in the track structure” (Lucas, 2001:1643).

Furthermore, this literature review has explored the main variables that prior investigations have taken into account as determinants of educational attainment and outcomes. As it is displayed in Table 5, all the reviewed studies pay close attention to assess the influence of sociodemographic variables; some investigations focus on evaluating the role of institutional factors such as the type of institution or tracking (Gamoran, 1992; Kerckhoff, 1993; Arum and Shavit, 1997; Shavit and Muller, 2000; van de Werfhorst *et al.*, 2007); the type of curriculum (Iannelli, 2013) and academic performance (Lucas, 2001; van de Werfhorst *et al.*, 2003, Holm and Haeger, 2011, Karlson, 2011). Nevertheless, social stratification research has not treated in much detail the role of individual level-variables such as agency dimensions, preferences towards education, freedom to choose and aspirations.

This thesis contributes to the literature by exploring not only the role of sociocultural and ascriptive factors but also the influence of institutional and individual-level

factors. More specifically, key variables included as predictors of educational transitions are: aspirations, degree of freedom to choose school, school (dis)engagement, access to scholarship, scholarship type, academic performance (grades), and alternative dimensions to account for the institutional differentiation of upper secondary education, among others. Data came from the School dropouts' survey for Mexico, 2011. Further information regarding the characteristics of the dataset and the dependent and explanatory variables is presented in the methodological chapter.

As regards to the institutional differentiation of upper secondary education in Mexico, it is worth highlighting that instead of merely distinguishing between academic and vocational education, this dissertation will provide a more refined classification of the institutions which comprises six main categories: (1) academic high status institutions (in classrooms schooling); (2) academic institutions of distance learning; (3) technological institutions managed by the federal government; (4) technological institutions managed by the state governments (5) technical institutions and (6) private schools. These institutions vary in terms of their curriculum, prestige, sources of funding and demand. Thus, the extent to which the institutional differentiation of upper secondary education in Mexico contributes to reinforce or diminish social origin effects at different stages of persons' educational trajectories will be examined.

As it was discussed in this chapter, the growing body of research examining educational transitions offer some insight for operationalizing educational choices. For Mare's (1981), person's decision to enter a given level of education is conceptualized as a binary choice (yes/no) and consequently educational transitions have been understood as a series of educational decisions. However, it is worth noticing that the complexity associated to freedom to choose has not received a great deal of attention when conducting educational transitions research. This study will explore whether freedom to choose has an impact on students' mobility across transitions.

Finally, having reviewed key empirical investigations carried out during the past decades in the field of education and social stratification, and after situating some of the contributions of this dissertation to this area of knowledge, the following chapter moves on to discuss the research questions and methods used for conducting data analysis

**Table 5.- Quantitative studies on social inequalities in education**

| <b>Author and year</b>      | <b>Type of inequality</b>  | <b>Educational level</b>  | <b>Key explanatory variable(s)</b>   | <b>Country</b>  | <b>Source of information</b>   | <b>Analytical strategy</b>       | <b>Theoretical perspective</b>                 |
|-----------------------------|----------------------------|---|--|-----------------|--|----------------------------------|--|
| Mare, 1980                  | Educational transitions    | From elementary to tertiary education   | Parental education<br>Father's occupational status<br>Family income                              | USA             | Occupational changes in a generation survey for USA, 1973  | Logistic regression              | Selection hypothesis                           |
| Shavit and Blossfeld, 1993  | Educational transitions    | From elementary to tertiary education   | Father's education<br>Father's occupation  | 13 countries    | Several datasets   | Logistic regression              | Several theories                               |
| Raftery and Hout, 1993      | Educational transitions    | From secondary to tertiary education: enter and complete secondary and enter tertiary education | Birth cohort<br>Social origin (parental occupation)  | Ireland         | The Irish Mobility Study, 1989 and the Dmmcondra Study of Educational Achievement, 1984                          | Logistic regression              | Maximally Maintained Inequality                |
| Breen and Jonsson, 2000     | Educational transitions    | Enrolment at different tracks in secondary and tertiary education                               | Highest social class of parents<br>Grades  | Sweden          | Cohort analysis  | Multinomial logistic regression  | No clear link of empirical findings and theory |
| Lucas, 2001                 | Educational transitions    | Enrolment in several tracks in high schools and universities                                    | Parental occupation,<br>Parental education,<br>Family earnings<br>Grades<br>Academic performance | USA             | The high schools and beyond, 1980  | Ordered probit regression models | Effectively maintained inequality              |
| Rijken <i>et al.</i> , 2007 | Access to higher education | Enrolment in several tracks in higher education   | Parental education<br>Parental occupation<br>Previous type of education<br>Cohort gender         | The Netherlands | School Career and Background of Pupils in Secondary education studies (1976, 1982) and the Cohort of Students in | Multinomial regression models    | No clear link of empirical findings and theory |

|                                       |  |   |  |                               |   |   |   |
|---------------------------------------|--|---|--|-------------------------------|---|---|---|
|                                       |  |   |  |                               | Secondary Education Studies (1989, 1993)  |   |   |
| Tieben and Wolbers, 2010              | Transitions to post-secondary and tertiary education           | Enrolment in several tracks in postsecondary and higher education   | Parental education<br>Parental occupation<br>Cohort gender                                   | The Netherlands               | Family Survey Dutch Population (1992, 1998, 2000 and 2003)  | Multinomial regression models                       | Effectively maintained inequality                                     |
| Iannelli, Gamoran and Patterson, 2011 | Access to higher education                                     | Enrolment in several tracks in higher education   | Social class of origin,<br>Gender, Parental education and<br>Previous educational attainment | Scotland                      | Scottish School Leavers Surveys and the Education and youth transitions in England, Wales and Scotland, 1984-2002   | Binomial and Multinomial logistic regression models | Effectively maintained inequality                                     |
| Panichella and Triventi, 2004         | Access to secondary education                                  | Enrolment in several tracks in secondary education  | Parental occupation<br>Cohort<br>Gender<br>Track placement                                   | Italy                         | Italians Household longitudinal Survey  | Binomial and multinomial regression models          | Maximally maintained inequality and effectively maintained inequality |
| Torche, 2010                          | Educational Attainment/ educational transitions                | Highest educational level attained ( no education or some primary, primary graduate, some secondary, secondary graduate and post-secondary) | Father's occupational status<br>Parental education<br>Gender                                 | Four Latin American countries | Brazil Survey of Living Conditions, 1996/97<br>Chilean Social Mobility Survey, 2001<br>Colombian National Life Quality Survey, 2003<br>Mexican Social Mobility survey, 2006 | Ordered logit regression                            | No clear link of empirical findings and theory                        |
| Kerckhoff, 1993                       | Educational and work outcomes: examinations, qualifications or | Secondary education<br>Tertiary education<br>Entry to labour force  | Father's occupation<br>Parental education<br>Type of school                                  | United Kingdom                | National Child Development Study for Britain, 1958  | Logistic regression                                 | Life course analysis and several sociological theories                |



|                                       |  |  |   |                             |  |   |  |
|---------------------------------------|--|--|---|-----------------------------|--|---|--|
|                                       | type of occupation.                            |  |   |                             |  |   |  |
| Arum and Shavit, 1997                 | Occupational outcomes                          | Early labour market outcomes/enrolment to higher education           | Socioeconomic status<br>Ability<br>Siblings<br>Ethnicity<br>Type of school<br>Track placement                       | USA                         | The High School and Beyond, 1987       | Multinomial logistic regression         | No clear link of empirical findings and theory                         |
| Shavit and Muller, 2000               | Occupational outcomes                          | Occupational attainment, occupational prestige and employment status | Social background<br>Type of school   | 11 industrialized countries | Several datasets                       | Logistic regressions<br>OLS regressions | Theoretical discussion: human capital theory and reproduction theories |
| Iannelli, 2013                        | Occupational outcomes                          | Social class of destination  | Parental social class<br>Parental education<br>Subjects studied in secondary<br>Type of school<br>gender<br>Ability | United Kingdom              | National Child Development Study, 1958 | Logistic regressions                    | Reproduction theories  |
| van de Werfhorst <i>et al.</i> , 2003 | Educational attainment and fields of study     | Tertiary education   | Parental social class<br>Gender<br>Parental reading behaviour<br>Ability<br>Comparative advantage                   | United Kingdom              | National Child Development Study, 1958 | Multinomial logistic regression         | Rational choice and reproduction theories                              |
| van de Werfhorst <i>et al.</i> , 2007 | Educational outcomes (academic achievement and | Primary and Secondary  | Parental education<br>Parental social class<br>Cultural capital<br>School performance                               | The Netherlands             | Survey data                            | Ordered logit model                     | Reproduction theories and rational choice perspective                  |

|                      |                         |                                  |  |               |  |                                 |  |
|----------------------|-------------------------|----------------------------------|--|---------------|--|---------------------------------|--|
|                      | educational ambitions)  |                                  | Secondary school type  |               |  |                                 |  |
| Holm and Jæger, 2011 | Educational transitions | Tertiary education               | Parents education<br>sex, cognitive ability<br>examination results | Great Britain | National Child Development Study, 1958 | Bivariate probit model          | No clear link of empirical findings and theory |
| Karlson, 2011        | Educational transitions | Secondary and tertiary education | Parental education<br>Parental occupation<br>Gender, ability       | Denmark       | Danish longitudinal survey, 1954       | Multinomial logistic regression | No clear link of empirical findings and theory |

Source: my own elaboration.

## **Chapter 4 Research design and methodology**

### **4.1 Introduction**

The purpose of this chapter is to present the research design and the methodology that has been adopted for conducting this study. It is worth stressing that an important section of the research design was presented in the theoretical framework, when several hypotheses were formulated. This chapter turns now to establish more explicit and clearer connections between research hypotheses, questions and analysis techniques.

This chapter is divided in five main sections. Section 4.2 presents research purposes, hypotheses and questions. Section 4.3 describes the key features of the data source and the strategy to deal with the complex survey design. Sections 4.4 to 4.6 outline the analytical strategy for carrying out this study which includes data analysis, data management, data preparation and data reduction.

### **4.2 Research purposes, hypotheses and questions**

Mexico has achieved universal access in primary education but in spite of educational expansion there are still some crucial challenges to broaden the levels of participation at subsequent educational stages. Data from INEE (2014) illustrate this point clearly; during the school year 2012-2013 the coverage rate in primary education is 100 per cent, this figure is 82.4 per cent for lower secondary and 52.9 per cent for upper secondary education. Besides, the coverage rate in higher education, during the period 2011-2012 is 32.8 per cent (Ordorika and Rodriguez, 2012). Moreover, although the Mexican education system has expanded over the years, some social groups faced more challenges and difficulties to participate in schooling. Hence, there has been some concern for examining what other factors, beyond social origin, are associated with patterns of participation in secondary and post-secondary pathways in Mexico.

The main purposes of this thesis are: to conduct interdisciplinary theoretical work between the sociology of education and the capability approach; to apply the

theoretical framework by operationalising concepts and testing research hypotheses and to investigate the predictors of individuals' opportunities to attain higher educational transitions in Mexico. These transitions are access to upper secondary education, completion of upper secondary education instead of dropping out and access to higher education. A parallel objective is to investigate what factors impacts on individuals' institutional location in upper secondary education.

Figure 3 shows the outcome and explanatory factors that were available in the School Dropouts' Survey. It is worth noticing that due to data availability not all the predictors can be taken into account to explain each of the main outcomes of interest of this study<sup>8</sup>. Furthermore, Figure 3 illustrates how each group of predictors is linked to the theoretical perspectives that were analysed in the theoretical framework of this thesis.

This research will address four main research questions:

- 1) To what extent are the chances of entering upper secondary education associated with: socio-cultural and ascriptive factors; prior achievement; institutional factors; urbanisation and aspirations?
- 2) Does the impact of socio-cultural and ascriptive factors; prior achievement; institutional factors; urbanisation and aspirations vary on the likelihood of entering different types of institutions in upper secondary education?
- 3) To what extent socio-cultural and ascriptive characteristics, economic resources, institutional factors; agency dimensions and educational experiences influence the chances of completing upper secondary education instead of dropping out?

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<sup>8</sup> Further details on the outcomes and predictors included at each educational transition (as well as the criteria for their selection) are described in section 4.6.5. However, it is important to highlight that the School Dropouts Survey provides much more data for the second and third educational transitions: completion of upper-secondary education and access to higher education than for the first educational transition: access to upper-secondary education.

- 4) To what extent are the opportunities of entering university associated with: socio-cultural and ascriptive factors, economic resources, agency dimensions, institutional factors and educational experiences?

The first two research questions are about the extent to which a range of factors make an impact on the opportunities of entering upper secondary education and on the chances of being located in different types of institutions. To be specific, the factors taken into account to explain these two outcomes are: socio-cultural and ascriptive factors (parental education, gender and ethnicity); institutional factors (type of institution attended in lower secondary education); prior achievement (grades in lower secondary education); urbanisation (living in rural or urban areas) and educational aspirations. Tables 7 and 8 shows the type and values of the outcome variables and the explanatory factors .

The third research question examines the extent to which the chances of completing upper secondary are associated to several factors. To be clearer, these factors are: socio-cultural and ascriptive characteristics (parental education, gender, ethnicity and age); economic resources (an index of home possessions); agency dimensions (individuals' degree of freedom to choose school); institutional factors (type of institution attended in upper secondary education); educational experiences (prior achievement, access to scholarship and index of risk events); and preferences towards education ( index of school disengagement) Table 9 displays the main features –type and categories- of the outcome and predictor variables taken into account to explain the likelihood of concluding upper-secondary education.

Finally, Question 4 is about the extent to which the opportunities of entering university are associated with: sociocultural and ascriptive characteristics (parental education, gender, and ethnicity); economic resources (index of home possessions), institutional factors (type of institution attended in upper secondary education); prior achievement; access to scholarship and agency dimensions (individuals' degree of freedom to choose school). Further details of the outcome and predictor variables are shown in the latest section of this chapter (see Table 10).

### *Linking hypotheses, research questions and analysis techniques*

This research can be situated within an interdisciplinary theoretical framework which comprises theories of the sociology of education and a perspective that has its origins in political philosophy and economics. In consequence, this investigation aims to make a contribution to three main areas of knowledge: sociocultural reproduction theory, social stratification perspectives and the human development and capability approach.

Drawing on the interdisciplinary theoretical framework, several hypotheses were articulated in order to explain what influences individuals' educational opportunities (see Chapter 2). It is worth recalling that, due to data availability, only four hypotheses will be tested in this research. In the next lines, it is explained how the hypotheses are related to research questions and empirical analysis.

The first research hypothesis is from Sen's capability approach. I will test the hypothesis that human agency dimensions, such as individuals' freedom to choose school, have an impact on the chances of reaching higher levels of education (Hypothesis 1, Chapter 2). This hypothesis is related to research questions 3 and 4 because such questions investigate the extent to which human agency make an impact on the likelihood of completing upper secondary education as well as on the chances of entering university. Furthermore, in order to answer Questions 3 and 4 and to test Sen's hypothesis, logistic regression analysis is conducted (the specification of statistical models is in Section 4.6.4). The empirical findings are presented and discussed in Chapters 6 and 7.

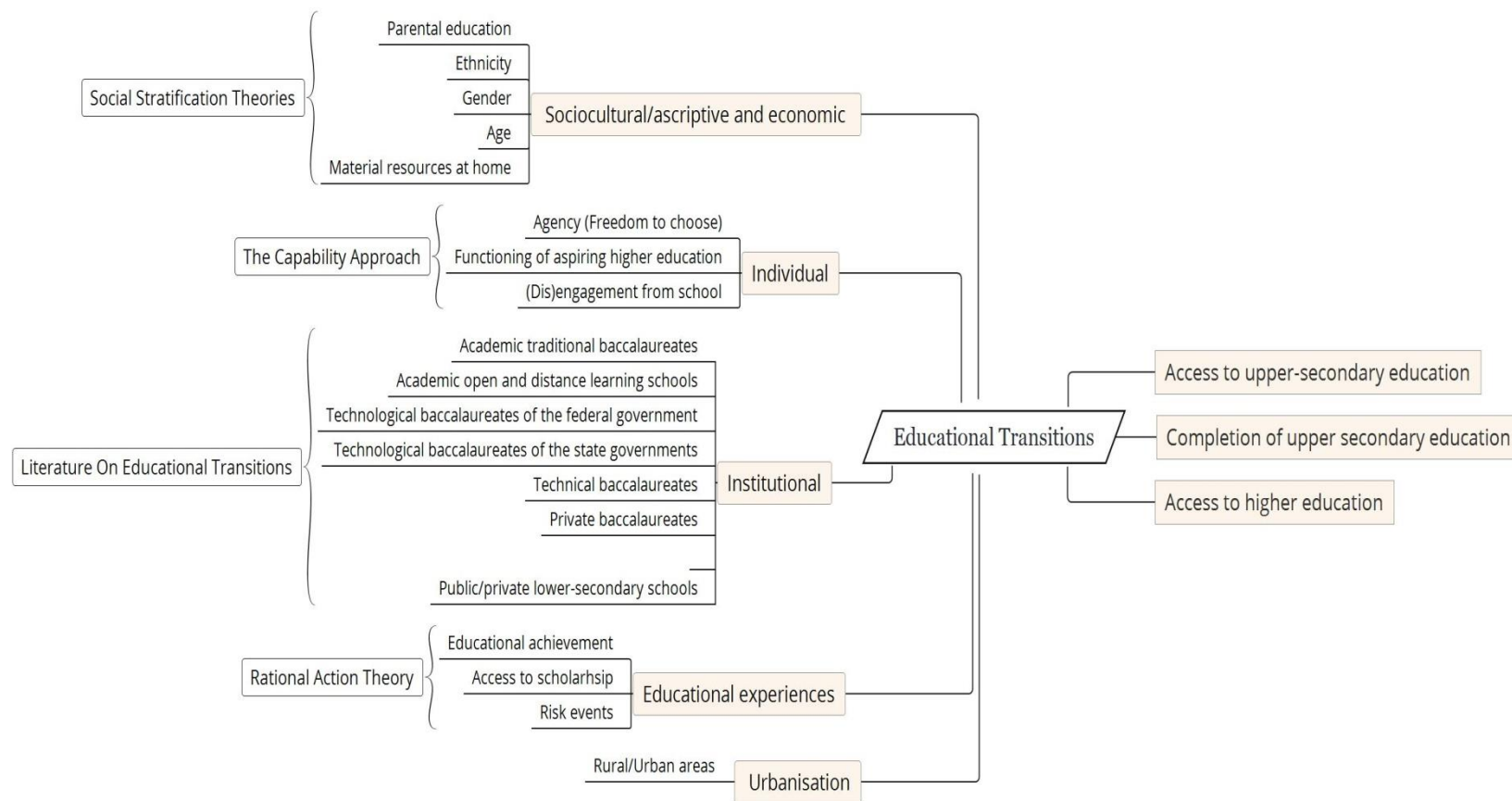
Another key research hypothesis was formulated drawing on Bourdieu's sociocultural reproduction theory. Specifically, I will test the hypothesis that individuals' opportunities of making higher educational transitions are influenced by structural factors such as sociocultural and economic resources. According to this hypothesis, individuals from more advantageous social backgrounds have more chances to participate in upper- secondary education and higher education (Hypothesis 3, Chapter 2). This hypothesis can be linked to all research questions because the required information to test this hypothesis comprises sociocultural

resources -parental education-, and data on parents' education is available to explain the three outcomes of interest (transitions in upper secondary and higher education). However, data on economic resources (index of home possessions) is available only for the second and third educational transition (research questions 3 and 4). Thus, in order to answer Questions 1 to 4 and to test Bourdieu's assumptions, binomial logistic regression models are specified (see Section 4.6.4). These empirical results are presented and discussed in Chapters 5, 6 and 7.

Furthermore, a hypothesis from the rational action theory will be tested. More precisely, I will test that if persons receive economic benefits -present and/or future- for attending schools; if they achieve higher levels of academic achievement than their counterparts and if they do not face uncertain life events that may hinder their educational trajectories, then they are more likely to reach higher educational levels (Hypothesis 5, Chapter 2). This hypothesis is linked to research question 3 because such question is about the effects of educational experiences - academic achievement, economic benefits (access to scholarship) and risk events-, on the chances of completing upper secondary-education. Chapter 6 shows the empirical findings that answer research question 3.

The last hypothesis to be tested is from the effectively maintained inequality (EMI) approach. This hypothesis states that in Mexico, macro-level patterns of social differences in educational attainment occur because people from higher social backgrounds use their socioeconomic advantages to attain higher school transitions and to enter high quality institutions. By having access to a high quality institution in one stage, individuals from higher social backgrounds are more likely to enter high quality schools in subsequent educational paths (Hypothesis 7, Chapter 2). The second research questions can be clearly linked to this hypothesis, because it takes into account the effects of sociocultural resources (parental education) on the chances of entering qualitatively different institutions in upper secondary education. In order to answer research question 2 and to test this research hypothesis, multinomial logistic regression analysis is conducted (further specification of the statistical models appear in Section 4.6.4). Finally, Chapter 5 shows the empirical findings that answer the second research question.

**Figure 3. - Factors influencing educational transitions<sup>9</sup>**



<sup>9</sup> Due to data availability not all the explanatory factors are used to explain the three main outcomes.



### 4.3 Methodological considerations

In order to address the previous research questions and to test the research hypotheses, this dissertation will conduct secondary quantitative data analysis. Some of the advantages of carrying out secondary analysis of large-scale national government surveys are that they offer very high quality data; they are usually constructed following rigorous process for elaborating questionnaires and for information-gathering; and these kinds of surveys usually draw on advanced methodological designs (Dale, *et al.*, 1988).

Data used for conducting the empirical analysis came from the School dropouts' survey for Mexico, 2011 (SDS). The SDS is cross-sectional study which was originally compiled for analysing the determinants of dropping out from upper secondary schools in Mexico. Nevertheless, this dissertation uses the SDS dataset for a different purpose: to addresses research questions related to educational transitions. To be specific, a central aim of this research is analysing the role of socio-cultural and ascriptive factors (e.g. social origin, gender, ethnicity), agency and capability dimensions (freedom to choose and aspirations) and institutional factors (type of institution attended) on educational transitions. The School dropouts' survey from Mexico allows operationalizing these dimensions. Therefore, the use of national surveys, such as the School dropouts' survey (SDS) for Mexico, provides an opportunity for making inferences about relatively inaccessible sub-populations of young people.

The instruments for collecting information of the SDS were questionnaires. In order to collect data, interviewers visited respondents' households, asked the questions and then, the interviewers filled the questionnaires. No economic incentives were offered to the respondents for participating in the survey (Buendia and Laredo, 2012).

Moreover, there were two different types of questionnaires: one for individuals and another for parents. The questionnaires are structured and most of the questions are closed. The types of questions which predominate in the individual questionnaire are

dichotomous questions, multiple choice questions and rating scales. For Cohen et al (2011), closed questions are favourable for statistical treatment and analysis and they are also useful for making comparisons across groups or subpopulations. In the next section, the sample design characteristics and its implications for conducting statistical analysis are discussed.

#### **4.3.1 School dropouts' survey: the sample design**

The School dropouts' survey for Mexico, 2011 provides rich data on individuals aged 14 to 25 living in households located in urban and rural regions. The initial sample of this survey consisted of 15,655 young people and the figure of those who actually agreed to participate in the survey is 13,014 (Buendia and Laredo, 2012). Therefore, the response rate of the survey is 83.1 per cent. The achieved response rate of the SDS seems to be sufficiently high to estimate inferences about the population of youngsters. According to Hibberts *et al.*, (2012:55), when doing survey research: "a 70% or higher response rate is usually considered appropriate".

The sample is probabilistic, stratified, per clusters and multistage (SEP-SEMS, 2012). According to Buendia and Laredo (2012), in the first stage the target population was divided into several stratas or groups. The sample was stratified by the level of urbanisation (three categories from less urbanised to more urbanised areas) and the geographical location (10 regions). Next, clusters were selected per each stratum. Buendia and Laredo (2012) point out that the 'primary sampling units' included geo-statistical areas and rural localities. The procedure to select the clusters inside each stratum was through a 'systematic sampling with probabilities proportional to size'. The distribution of clusters and observations is displayed in Table 6. As it is shown, there is some variability in the number of clusters (#Units) and respondents (#Obs) per stratum; however, the number of observations per clusters is sufficiently large to estimate variability.

The second stage entailed selecting neighbourhoods inside each cluster: eight neighbourhoods were selected per urban areas and the same number per rural areas. In the third stage, 10 households were selected per each neighbourhood. The last step was the selection of respondents. Each household was visited by an interviewer who

looks for young people between 14-25 years old. The criterion to select respondents was as follow: (1) if there were more than one young person who dropped out from upper secondary education, one of them was randomly selected; (2) If there were no dropouts, one of the young persons aged 14-25 was randomly selected to participate in the survey. (Buendia and Laredo, 2012)

**Table 6.- Sample design characteristics**

| Stratum | #Units | #Obs  | min | mean | max |
|---------|--------|-------|-----|------|-----|
| 1       | 30     | 865   | 20  | 28.8 | 54  |
| 2       | 10     | 283   | 12  | 28.3 | 49  |
| 3       | 5      | 153   | 22  | 30.6 | 45  |
| 4       | 27     | 475   | 6   | 17.6 | 27  |
| 5       | 11     | 208   | 15  | 18.9 | 27  |
| 6       | 6      | 98    | 15  | 16.3 | 19  |
| 7       | 39     | 560   | 1   | 14.4 | 21  |
| 8       | 10     | 135   | 2   | 13.5 | 19  |
| 9       | *1     | 18    | 18  | 18.0 | 18  |
| 10      | 31     | 555   | 1   | 17.9 | 38  |
| 11      | 26     | 482   | 9   | 18.5 | 35  |
| 12      | 9      | 196   | 11  | 21.8 | 34  |
| 13      | 25     | 554   | 8   | 22.2 | 36  |
| 14      | 15     | 371   | 11  | 24.7 | 48  |
| 15      | 10     | 286   | 17  | 28.6 | 51  |
| 16      | 82     | 2066  | 3   | 25.2 | 47  |
| 17      | 23     | 607   | 9   | 26.4 | 42  |
| 18      | 7      | 218   | 14  | 31.1 | 38  |
| 19      | 10     | 236   | 16  | 23.6 | 38  |
| 20      | 21     | 576   | 9   | 27.4 | 46  |
| 21      | 11     | 273   | 19  | 24.8 | 44  |
| 22      | 12     | 360   | 18  | 30.0 | 43  |
| 23      | 20     | 538   | 13  | 26.9 | 50  |
| 24      | 12     | 316   | 13  | 26.3 | 38  |
| 25      | 11     | 248   | 11  | 22.5 | 53  |
| 26      | 19     | 450   | 6   | 23.7 | 38  |
| 27      | 16     | 370   | 14  | 23.1 | 31  |
| 28      | 24     | 830   | 18  | 34.6 | 51  |
| 29      | 15     | 503   | 19  | 33.5 | 41  |
| 30      | 6      | 184   | 23  | 30.7 | 41  |
| 30      | 544    | 13014 | 1   | 23.9 | 54  |

Source: my own elaboration from the School dropouts' survey for Mexico, 2011

As it was highlighted, the school dropouts' survey draws upon a multistage sample rather than a simple random sample and this has crucial implications for data analysis. According to Tarling (2009:13) a consequence of clustering is an increment in the standard errors because people who live in small regions or in the same areas tend to be more alike. Therefore, it is required to make some adjustments in the statistical analysis to incorporate the sample design characteristics such as stratification, clusters as well as the process to choose the sample members. To be specific, individual weight must be used to obtain unbiased estimators of the population and in order to properly estimate variability (e.g. variance and standard deviations) the effects of stratification and clustering must be taken into account.

In the survey, two different weights were available: household and individual weights. Buendia y Laredo (2012), mention that individual weight was created in order to correct for the selection procedure of the respondents inside each household. In those households where dropouts were found the individual weight was defined as the inverse of the total number of youngsters in the household. In contrast, in households with no dropouts or with young people never enrolled in upper secondary education, the individual weight was specified as the inverse of the total number of young people at home multiplied by an adjustment factor. This factor was included since in households where dropouts were found the other two subgroups were excluded in the sample (Buendia y Laredo, 2012:11).

The research questions of this project are specified at the individual level; therefore, individual weight should be used instead of household weight. An advantage of using weights in survey research is illustrated by Hibberts *et al.* (2012):

Disproportionate stratified samples and some multi-stage cluster samples must be weighted if you want to use the samples to make an inference to the population from which the samples were obtained. Because some strata or groups are overrepresented in the sample while other strata or groups are underrepresented, it is necessary to weight the cases in the sample so that the group proportions in the sample will be the same as they are in the population (Hibberts *et al.*, 2012:64).

In spite of the apparent benefits of using sample weights, Flower (2009:157) notes that there is not a consensus among researchers regarding their application, because of: “[...] a critical assumption, which is almost always untestable: that those responding from a particular subgroup are about the same as those not responding on the variables the survey is trying to estimate”.

The sample of School dropouts’ survey was designed to be nationally representative of the dropouts’ population: therefore, young people who have withdrawn from upper secondary education were privileged as respondents. However, the sample reaches national representativeness for the three subpopulations of respondents: dropouts, non-dropouts and young people who have never been enrolled in upper secondary education (Marquez, 2014).

### **4.3.2 Sample distribution**

The School dropouts’ survey allows analysing several educational stages of the Mexican educational system: access and completion of upper secondary education and access to higher education. Figure 4 shows the numbers and percentages of the sample and the sub-samples at each school transition. These figures were estimated without applying probability weights. As can be seen from Figure 3, of the sample, 80 per cent completed lower secondary education and 20 per cent has not graduated from this educational level. Besides, out of the total number of graduates from lower secondary, 79 per cent enrolled in the next level, upper secondary education, and 21 per cent has never been enrolled in this educational option.

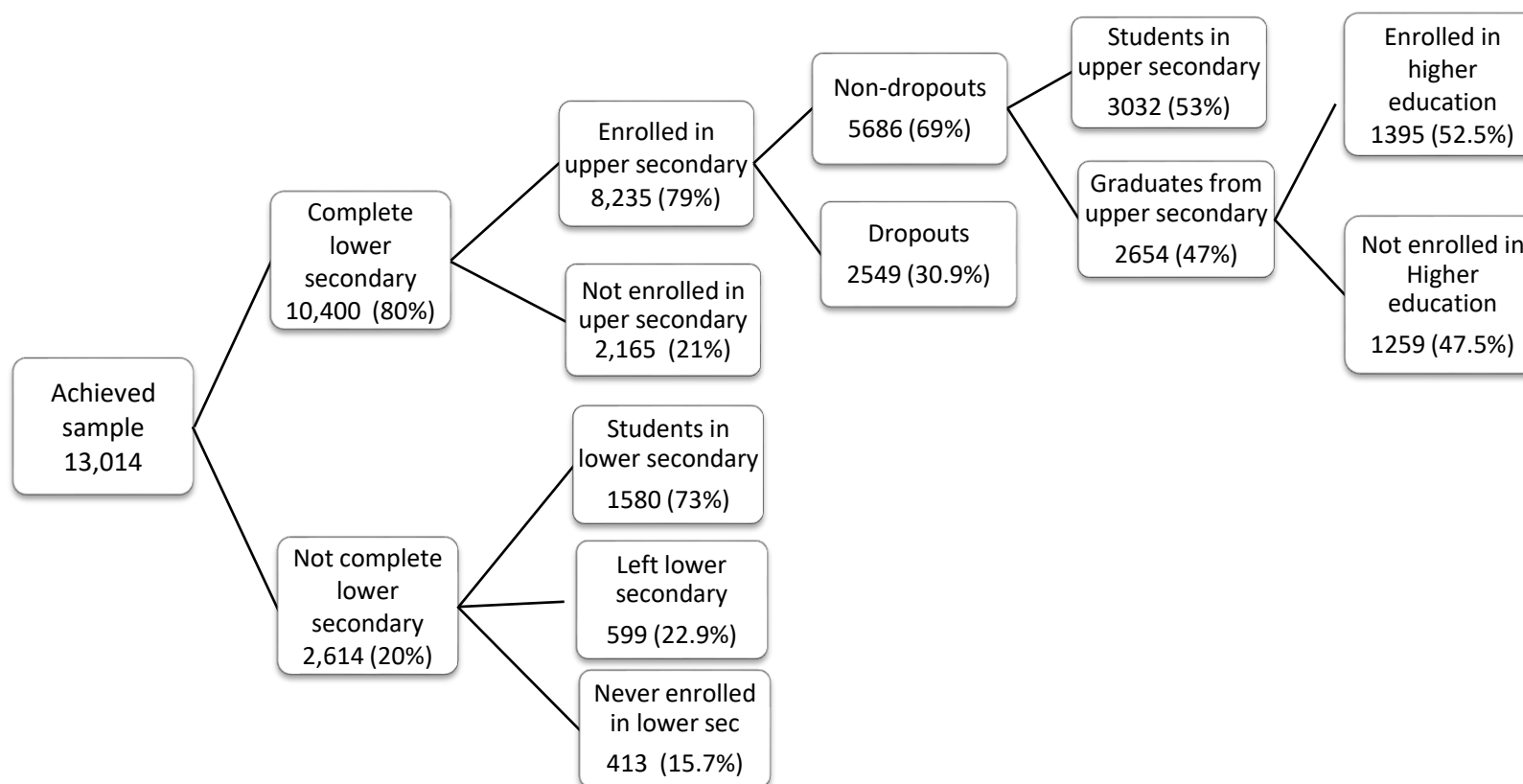
Moreover, of the total number of respondents who enter upper secondary education, 30.9 per cent are dropouts and 69 per cent are non-dropouts (students and graduates). Out of the total sub-sample of graduates from upper secondary schools, 52% continue in higher education and 47.5 per cent do not follow this educational pathway.

Finally, Figure 4 also unpacks the characteristics of those who have not completed lower secondary education. The majority of those who have not completed lower secondary (73 per cent) are still studying this educational level; 22 per cent have withdrawn and 15 per cent has never been enrolled in this educational level. Finally,

although the School dropouts' survey was not targeted to identify lower secondary school dropouts, it raises some concern the high proportion of young people who drop out from lower secondary education especially because it is compulsory since 1993.

Finally, as it was noticed earlier, all respondents who took part in the survey aged 14 to 25 when data was collected. However, to conduct the statistical analysis the sample will be restricted to respondents aged 16 and older. This is because it is more likely that individuals have participated in upper secondary school after the age of 16. In other words, a large majority of the respondents aged 14-15 are still studying lower secondary (86.3 per cent).

*Figure 4.- Sample distribution*



Source: my own elaboration from the School dropouts' survey for Mexico, 2011. The numbers presented in this table may not strictly match with those reported in subsequent statistical analysis because the former are based on unweighted data and they take into account respondents aged 14-25

### 4.3.3 Incorporating the sample design features in the statistical analysis

In the preceding section was discussed why the sample design characteristics should be taken into account to analyse complex survey data. As it was mentioned, it is usually recommended to incorporate the effect of weights, clusters and stratas in order to calculate unbiased estimators and variability.

Thus, it is necessary to select a technique for variance estimation. According to Lee and Forthofer (2006), there are three main methods to calculate variability in complex surveys: (1) Taylor linearization; (2) bootstrap replication technique and (3) jackknife replication technique. A brief explanation of the first procedure is provided by Kreuter and Valliant (2007).

[L]inearization also known as Taylor series estimation or the delta method involves making a linear approximation to the nonlinear statistic being analysed. A variance formula, appropriate to the sample design, is then applied to that approximation. Stata and other statistical software have programmed the approximations for many statistics and require the user to specify only the analysis and certain information about the sample design (Kreuter and Valliant, 2007:11).

On the other hand, the main characteristic of the replication methods -both bootstrap and jackknife- is that subsamples are created from an original sample to estimate variability. The underlying principle of this strategy is neatly described by Kreuter and Valliant (2007) as follows:

For a replication variance estimator, the sample is broken into subsamples. The desired estimated is computed for each subsample, and the variance is calculated among the sample estimates. How the samples are formed depends on the type of replication variance and can be overlapping or disjointed (Kreuter and Valliant, 2007:12).

Each of these methods has advantages and drawbacks. For Stapleton (2008:359), all these procedures are useful to compute a range of statistics; however, Stapleton notes



that jackknife methods typically require many less replications than the bootstrap methods. Moreover, according to Lee and Forthofer (2006:43) “none of the three methods consistently performs better or worse”. They emphasize that researchers tend to select the technique to estimate standard errors considering the availability and degree of understanding of the statistical programme.

### *Hierarchical Linear Models*

The selection of a procedure to estimate variability is also influenced by the research purposes. For instance, some researchers may be interested on using the sample design as an important part of the analytical model and these studies are called model-assisted or model-based analysis (Stapleton, 2008: 359). Thus, multi-stages samples can be more deeply examined at several levels of analysis such as: neighbourhood-level, school-level, region-level, etc. In order to conduct this type of research, multilevel models also known as Hierarchical Linear Models (HLM), have been widely applied.

According to Jones (2008), a key aspect of multilevel data structures is that data is measured at several levels. Data is hierarchical because “lower-level” units are nested within “higher-level” units. For instance, students nested within schools, patients within hospitals, voters within neighbourhoods and states, etc.

Multilevel models are commonly used in educational research because educational data is usually collected with an inherent multilevel structure (e.g. students nested in schools and schools grouped in school districts). Multilevel modelling is an appropriated approach to analyse hierarchical data because it allows taking into account the factors used in the sample design. (Gelman and Hill, 2007).

In spite of the many advantages of HLM, the selected strategy to calculate variability in this research is Taylor linearization. There are three main reasons for using this method instead of other alternatives for variance estimation. First, my interest is on investigating Level 1 variables; so, the research questions of this thesis are formulated at the individual level of analysis. In other words, it is not a research purpose to estimate outcomes and variability at “higher-levels” units of analysis such

as neighbourhood level or regional level. Second, Taylor linearization is a straightforward and faster technique to implement in Stata than the jackknife and bootstrap replications methods. Third, the Taylor series method is a long-established approach to approximate variance of complex statistics and, according to many statisticians; it usually produces similar results than those obtained by other approaches (Verma and Veti, 2011).

Finally, the software used in this study is Stata version 12. Therefore, all the statistical modelling will be fitted in Stata programme. Unlike SPSS, Stata is more suitable for modelling data from complex surveys because it can take into account the survey design features (Tarling, 2009:14).

#### **4.3.4 Strengths and weakness of the data source**

After commenting on the key characteristics of the sample and its implications to conduct statistical analysis it is worth mentioning some advantages and disadvantages of the School dropouts' survey (SDS). There are three main advantages of using the SDS for analysing educational transitions:

- It covers a national representative sample of the population of young people aged 14-25. The sample is also representative of three sub-populations of youngsters: dropouts, non-dropouts (students and graduates) and those never enrolled in upper secondary education (Marquez, 2014). These populations are usually difficult to reach in national surveys.
- It captures a wide range of factors (socio-demographic, individual, educational and institutional) which might have an impact on individuals' educational attainment. In other words, it captures objective and subjective dimensions that make an influence on persons' educational trajectories.
- The School dropouts' survey allows analysing educational transitions. More specifically, data from the SDS can be used to study three key stages of the Mexican' educational system: participation and completion of upper secondary and progression to higher education.

Nevertheless, as it happens with all secondary data, the School dropouts' survey faces some other merits and limitations. For instance, the survey is a cross-sectional study which means that the information was collected in the present to explore some aspects of young people previous educational and life experiences. Most variables of the School dropouts' survey were measured retrospectively except: marital status, number of children, access to health services and employment status. These variables refer to individuals' conditions at the time when the survey was collected and they are not included in the statistical modelling.

Therefore, most data of the School dropouts' survey should be interpreted retrospectively. According to Blaikie (2010), due to the objective of retrospective studies is to collect information about past experiences, there is a chance that respondents do not remember some facts or it might also occur: "a possible reconstruction of the past under the influence of subsequent experiences" (Blaikie, 2010:203).

Apart from that, the SDS does not strictly collect data on the same sample of people over time such as longitudinal studies which arises more challenges to study educational transitions. However, in Mexico, like in many other Latin American countries, there is a lack of national representative longitudinal data to assess the educational experiences of young people who are in the typical age to attend at upper secondary and higher education. For Lucas *et al.* (2011:264), although it is advisable to use longitudinal data, the majority of educational transition research uses cross-sectional surveys.

The National Institute for the Evaluation of Education has recently designed and collected survey data useful for assessing educational transitions. For instance, the Survey of educational and career pathways of young people in Mexico City's metropolitan area (Encuesta sobre Trayectorias Educativas y Laborales de los Jóvenes de la Zona Metropolitana de la Ciudad de Mexico) allows event history analysis and it gathers relevant information on young people's educational trajectories from primary education to the labour market. However, this survey does not reach national representativeness (see <http://www.inee.edu.mx/>).

Finally, further collection of this kind of survey data would benefit by improving the questionnaire design. For instance, the inclusion of variables to account for other types of educational outcomes (e.g. skills and abilities in different areas of knowledge), as well as the incorporation of key variables to analyse social class (e.g. parental occupation), would be valuable. Finally, for future surveys, more consistency on the questions asked to the different type of respondents will allow for better comparisons among groups.

## **4.4 Data management**

Initial data management and data preparation was conducted in Excel and SPSS and all statistical modelling is conducted in Stata version 12. The school dropouts' survey dataset was received in an Excel format and some data management was initially performed using this programme. For instance, data from parents' questionnaire, variables on respondents' identification and variables that were not of major relevance for the purposes of this investigation were deleted from the dataset using Excel.

After initial management was conducted, the Excel file was exported into an SPSS file. Then, most of the existing variables were labelled and coded using information from the respondents' questionnaire. Next, the missing values were identified and coded.

Besides, it was required to integrate/merge variables in the dataset because a considerable amount of them appeared separately for various subpopulations of young people. Once variables were merged and coded, the first exploratory analysis was conducted in SPSS. This kind of analysis consisted of carrying out univariate analysis (frequency tables and cross-tabulations).

## **4.5 Data preparation and reduction**

Data preparation usually includes several tasks such as coding and recoding variables, creating new variables, constructing indexes, factors or scales, standardizing variables and specifying a strategy to manage missing values (de Vaus, 2004:163).

It is important to keep in mind that data preparation and reduction is rarely a conclusive one-step task. As de Vaus (2004:163), points out: “as initial results are examined, further ideas about how we can refine our analysis by better recoding and creating new variables will emerge”. In this thesis, data reduction included coding and re-coding variables, defining an approach to deal with missing values and constructing indexes and scales.

Specifically, coding and re-coding are conducted in order to operationalize concepts and/or to simplify the analysis. For instance, in the original dataset, variables such as parental education and the type of institution attended comprised too many categories and it was helpful to reduce them in order to provide a better interpretation of data.

Regarding the construction of indexes and scales, de Vaus (2004) states that several advantages exist if a concept is measured using multiple items instead of a single observation. For instance, a benefit of this strategy is that it increases the validity and reliability when concepts are operationalised. As de Vaus (2004:180) highlights: “often one observation on his own can be misleading and we need to see it in the context of other interpretations to avoid misinterpretations”. In this dissertation three indexes were constructed using multiple items. These indexes are: index of school disengagement, index of home possessions and index of risk events. The characteristics of these three indexes are described in following sections.

## **4.6 Data analysis**

This research will use quantitative methods for data analysis. The types of statistical analysis that will be undertaken are descriptive and inferential. Each empirical analysis will start with descriptive statistics such as frequency distributions, cross-tabulations and graphs in order to provide summaries of data. Besides, to make inferences about the population and sub-populations, inferential statistics is carried out. For instance, comparisons of means for continuous variables are estimated (t-tests) in order to identify if the average performance of two groups is significantly different (e.g. the means of grades for dropouts and graduates from upper secondary education).

Moreover, taking into account that the main variables of interest of this dissertation are categorical, non-linear regression models such as binomial and multinomial logistic regression are estimated. The selection of statistical techniques is consistent with current literature on educational transitions. It was mentioned in chapter three that binomial and multinomial logistic regression models are the most common approach to examine social background effects on educational transitions and institutional placement (Mare, 1981; Raftery and Hout, 1993; Shavit and Blossfeld, 1993; Rijken *et al.*, 2007 and Karlson, 2011). Although more recently, some educational transitions researchers have also explored the applicability of other regression techniques for categorical data such as the ordered probit regression model (Lucas, 2001) and the bivariate probit regression model (Holm and Jæger, 2011).

#### **4.6.1 Binomial and multinomial logistic regression models**

Binomial logistic regression models are regression techniques for modelling dependent variables with binary outcomes. Binary outcome variables are also known as dichotomous or dummy and they have two values or categories of response such as whether a person attended college or not or whether a person completes an educational level or not. Multinomial logistic regression models are statistical models for nominal unordered outcomes. Nominal variables have more than two categories, for example, persons' employment status: employed, unemployed and out of the labour force. (Long and Freese, 2006)

There is a variety of alternatives to present the coefficients of the binomial and multinomial logistic regression models including log-odds, odds ratios, relative risk ratios, marginal effects and predicted probabilities. Odds ratios are relative probabilities which are specified as the probability of an event happens divided by the chances that it does not happen ( $p/1-p$ ). While, relative risk compares the probability that an event occurs for certain group. Although odds ratios and relative risk ratios are probabilities, there is a slight difference between these measurements: odds are expressed as: 2 to 1 or 5 to 1 odds that an event happens against it does not happen; whereas, relative risks are expressed as, for example: 83 per cent probability that an event occurs (or does not occur) for a certain group. (Simon, 2001:533).

Moreover, both odds ratios and relative risk ratios are calculated by division and their interpretation is to some extent similar. For instance, a ratio of 1 for both odds and relative risks indicate perfect similitude between the two populations/events or situations that are being compared. While, values higher than 1 indicate that some event is more likely to occur than the other and conversely, values lower than 1 reveal that some event is less likely to happen. The higher the value of the ratio, the greater the disparity between the groups. (Simon, 2001). Finally, it is worth noticing that relative risk ratios are commonly called and interpreted as odds ratios (Bruin, 2006) especially in some disciplines such as sociology (Buis, 2014).

Moreover, average marginal effects (AMEs) represent the average impact of one or more explanatory variable(s) on a binary outcome such as the probability of an event occurs. In other words, AMEs express the average effect of  $X_1$  on a positive outcome  $P(y=1)$ . The Stata programme calculates marginal effects from a previously fitted regression model at fixed or average values of some covariates. The Stata's commands to compute AMEs of all covariates are: `margins`, `dydx(*)` or `margins, dydx(all)`. Both commands generate the same results. (StataCorp., 2012)

Furthermore, for the purposes of this thesis, the coefficients of the binomial logistic regression models at each school transition will be expressed in terms of average marginal effects. This strategy is adopted in order to achieve comparability across different regression models (see chapters five, six and seven). While, the coefficients of the multinomial regression analysis will be expressed as relative risk ratios because the most important objective of this analysis is to identify the type and strength of the association between the outcome and the explanatory variables (see chapter five). Finally, all the binomial and multinomial regressions models are estimated in Stata version 12.

#### **4.6.2 Handling missing values in logistic regressions**

The first approach selected to deal with missing values was listwise deletion. By using this method, the cases that reported missing data were not included in the statistical modelling. Stata uses listwise deletion as the default procedure to deal with missing values (Klein, 2014:15) and it is also the default strategy in many statistical

programmes However, Hertel does not recommend the application of this method when more than 15 per cent of the data is missed (Hertel as cited in de Vaus, 2004:176). In this study, most of the variables of interest reported a small number of missing values which does not lead to a severe reduction in the sample size.

The second strategy is to exclude the same cases with missing data from each regression model. For Long and Freese (2006), when logistic regression models are calculated using the same dataset but have different explanatory variables it is likely to have different samples. As a consequence, variations in the coefficients might be generated either by the specification of each model or by using different samples. Therefore, it is required to keep the samples equal size in order to make comparisons of the coefficients across logistic regression models. Taking into account Long and Freese's recommendations (2006), this dissertation uses the Stata commands `mark`, `markout` and the `if` condition in order to identify and to explicitly exclude the same cases with missing data from each set of regression models.

#### **4.6.3 Dealing with unobserved heterogeneity**

As it was discussed in chapter three, unobserved heterogeneity refers to the variables that are not measured or accounted for in the statistical analysis but that can make an influence in the results. Mare (1993) notes that commonly omitted variables in educational transitions research are: aspirations, academic performance and expected returns of education. Mood (2010) proposes some strategies which contribute to solve the problem of unobserved heterogeneity such as substituting an omitted variable with a measured factor and the estimation of probability changes, among others. Other scholars such as Lucas (2001) and Karlson (2011) have empirically addressed the issue of unobserved heterogeneity in school transitions by controlling for several explanatory variables (e.g. grades and peer-groups characteristics).

Similar to the strategy adopted by Lucas (2001) and Karlson (2011), this study will address the issue of unobserved heterogeneity by taking into account the influence of several independent variables beyond social background factors. As it was mentioned earlier, this research will contribute to the existing literature by exploring the influence of key variables scarcely assessed in school transitions research (academic



performance, freedom to choose school, preferences towards education). In the next lines the most important characteristics of the independent and explanatory variables of interest are specified.

However, it should be recognised that unobserved heterogeneity is not fully resolved because there is no data to account for all the variables that have an impact at each educational transition. On this matter, Holm and Jaeger (2011:312) note that the problem of unobserved heterogeneity is endemic in the analysis of educational transitions because it is not possible to assume that researchers are able to control for all the relevant variables that differentiate the groups of persons that make each school transition.

#### ***Multicollinearity diagnostics***

Multicollinearity happens when one or more explanatory variables included in a regression analysis are intercorrelated (Gujarati, 2004). It is important to investigate whether there are large correlations among the predictors because this may cause that the estimated coefficients of any factors greatly depends on one or more of the other explanatory variables (e.g. academic performance may perhaps be highly correlated with socioeconomic factors).

Rabe-Hesketh and Everitt (2004), point out that the rules for identifying issues of multicollinearity are the following: a variable whose values of the Variance Inflation Factor (VIF) larger than 10 provides evidence of collinearity and an average value of the VIF factors substantially larger than 1 suggests collinearity. In addition, tolerance values lower than .10 also indicates issues of multicollinearity. In this study, the Stata command ‘collin’ was used in order to identify if there are problems of multicollinearity.

#### **4.6.4 Specification of the statistical models**

As it was mentioned earlier, binomial regression models are used to identify the probability of making three school transitions given the levels of several explanatory variables. The educational transitions of interest are: (1) access to upper secondary education, (2) completion of upper secondary as compared to dropout, (3) access to

higher education. Multinomial regression models are used to estimate access to different types of institutions in upper secondary education given the levels of several predictor variables.

The strategy adopted to construct the dependent and explanatory variables for each transition is described in the next lines as well as the theoretical concepts behind these variables. The statistical models are displayed in Tables 7 to 10.

#### *Dependent variables*

- Access to upper secondary education

In this thesis, the term access to education will be used in its broadest sense to refer to enrolment in a specific level of education whereas the term participation is understood as the proportion of individuals from an age group who takes part in some type/level of education and training (Raffe, *et al.* 2001:176).

In order to construct the dependent variables to predict access to upper secondary education the original variable named ‘type of respondents’ was transformed. The initial variable included three categories: (1) dropouts from upper secondary education, (2) non-dropouts and (3) young people never enrolled in upper secondary education. For the binomial model, the categories of the dropouts and non-dropouts were collapsed into one category (named school participants) and those never enrolled in another category (named no-participants). Therefore, the final dependent variable for the model to predict access in upper secondary education is binary: coded 1 if the person enters upper secondary and coded 0 if the person has never been matriculated in this educational level. (Table 7)

For constructing the dependent variable of the multinomial model, the category of the school participants was re-coded taking into account the type of institution that the individuals were matriculated. The final dependent variable of the model to predict access to different institutions in upper secondary education is coded: 0 if the person has never been matriculated in upper secondary; 1 if the person has entered a technical school; 2 if the person has entered a technological school managed by the

federal government; 3 if the person has entered a technological school managed by the state governments; 4 if the person has entered academic high demand school; 5 if the person has entered academic distance learning schools; 6 if the person has entered other school (unclassified) and 7 if the person enter a private institution. (Table 8)

- Completion of upper secondary

According to Lamb and Markussen (2011:4) various definitions of the term school completion of upper secondary education are found across national systems. In some countries, this term is referred to as graduation, in others as retention to the final year and in other systems as achieving an upper secondary certificate or equivalent. Moreover, drawing on the work of Raffe (2010), Lamb and Markuseen (2010:4) note that as regards to the cases of England and Scotland: “there is no concept of school completion or graduation. After a young person reaches the end of compulsory schooling, usually at the age of 16, the level, duration, mode and content of learning vary widely and until recently, there has not been a standard or benchmark by which to judge whether an individual completes secondary education or not” (Raffe, 2010).

In this dissertation, the term school completion will be used to refer to all individuals who have graduated from upper secondary education. Persons who have graduated from upper secondary are those who have finished studies at an institution which offers studies of upper secondary education regardless the duration of studies or the type of institution attended<sup>10</sup>.

On the other hand, while a variety of definitions of the term “dropout” have been suggested in the literature, this dissertation will use the definition proposed by the

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<sup>10</sup> It is worth noticing that the sub-sample of students will not be included in the statistical analysis of the second school transition because the main interest is on exploring the probabilities of school completion (graduates from upper secondary education) and not on exploring the chances of school continuation (students and graduates from upper secondary education). There is not guarantee that all the population of students will finish upper secondary education, some of them might still dropout or interrupt their studies. This is why the group of students is not incorporated in the analysis of the second school transition.

Ministry of Public Education of Mexico who defines “dropout” as: “A dropout is a person who started an educational level, has not completed it neither is carrying out studies to reach that completion.” (SEP-SEMS, 2012:44, my own translation). The School dropouts’ survey also adopts this definition of the term dropout.

The dependent variable called completion of upper secondary education instead of dropping out is a dichotomous variable, coded 1 if the person complete upper secondary and 0 if the person dropout (see Table 9).

- Access to higher education

For the binomial model to predict access to higher education the population that complete upper secondary was divided into two categories: (1) those who were matriculated in tertiary education and (2) those that completed upper secondary but have never attended at higher education. Thus, the final variable is coded 1 if the person enters higher education and coded 0 if the person completes upper secondary but has never been matriculated in higher education (see Table 10).

#### *Explanatory variables*

The definition and measurement of some independent variables is consistent with literature on education and social stratification and with studies on education and capabilities. For instance, Lamb *et al.* (2011:370-373) identify six main groups of factors which are usually taken into account to explain dropout and completion of upper secondary education: individual, familiar, school-related factors, peer effects, community and regional factors.

The school dropouts’ survey (SDS) for Mexico, 2011 offers a broad range of variables. However, the explanatory variables included in the regression models will vary across the three educational transitions because not all the questions were asked to all respondents of the survey. There were questions specifically asked to the dropouts and non-dropouts and some other questions were only asked to young people never enrolled in upper secondary.

Data is especially rich for the second and third educational transition. For instance, variables such as home possessions and freedom to choose school, are only available for the groups of dropouts and non-dropouts (students and graduates) consequently these variables will only be included in the models to predict completion of upper secondary education and access to tertiary education. In the next lines it is explained how the explanatory variables are measured and how they are linked to key theoretical concepts. Tables 7 to 10 show further characteristics of these variables.

- Socio-cultural resources/social origin

For Bourdieu (1997) educational qualifications are a dimension of cultural capital. Besides, for Breen and Jonsson (2005), a great deal of social research commonly operationalizes social origin using the variables: parental education and/or parental occupation. Throughout this research, the variable highest level of parents' education is used as an indicator of individuals' cultural capital and social origin.

To be specific, the variable parental educational is measured by the last educational level that parents attended. The original variable comprises nine categories but it was re-coded into three categories: (1) no parents with lower secondary education, (2) at least one parent with upper secondary education and (3) at least one parent studied higher education.

A limitation of this strategy is that by using a single indicator of social origin and socio-cultural resources, the effects of family background might be underestimated. Therefore, it is desirable to use multidimensional measurements of sociocultural resources and social origins. However, data about other indicators of these dimensions such as parental occupation and parents' status were not available in the School Dropouts' Survey.

- Gender

Numerous studies have recognised that gender is associated to individuals' educational attainment and outcomes. For instance, Aikman and Unterhalter (2005) point out marked gender differences in access to education around the world. They

note that around 66 per cent of all people who do not have access to schooling are females. Therefore, Aikman and Unterhalter note that many nations advocate for reducing the disparities in the proportions of boys and girls in schooling.

On the other hand, for Lucas and Beresford (2010:30-32) gender is commonly identified in terms of persons' biological differences but this term may also be socially defined or conceptualized in terms of individuals' subjective perception. In the School dropouts survey gender was self-reported by the individual. This variable is measured as a dummy variable so it comprises two categories: 0 for male and 1 for female respondents.

- Ethnicity

In Mexico, a typical strategy followed in educational and household surveys to identify indigenous people is by using the variable: language spoken at home. The SDS includes one question that asks whether individuals speak or understand an indigenous language. The question has two possible answer options: (1) speaking an indigenous language and (2) not speaking an indigenous language. For this research the dummy variable on language spoken at home is used as an indicator of person's ethnic origin. However, this study recognises that there are some others dimensions of ethnicity such as nationality, skin colour, race and religion.

Furthermore, Schmelkes (2013) points out that in Mexico, around 6.6 per cent out of the total number of inhabitants aged 3 years and older speaks an indigenous language but 14.8 per cent of this population identifies themselves as indigenous. The latter figure represents 15.7 millions of inhabitants in the country. Schmelkes also notes that there are 68 different indigenous languages spoken in Mexico. In addition, it is well-known that the majority of the indigenous people live in rural areas and face poverty conditions and most of them are located in the southern region of the country.

- Prior academic performance

Breen and Jonsson (2000), note that although academic performance is a key predictor of educational attainment, this variable is frequently not available when conducting educational transitions research. As they state: “previous school performance is probably the most important source of unmeasured heterogeneity in models of educational transitions” (Breen and Jonsson, 2000:767).

Lucas and Beresford (2010:52), points out that test scores and grades are common measures of academic performance. The latter are usually preferred because the criteria to assign grades might vary among schools. In Mexico, the criteria to assign grades are quite homogenous among lower-secondary schools but there is more variability on this aspect in the upper secondary level. The standards to evaluate academic achievement in compulsory education are defined by the Ministry of Education. In the upper secondary level, the criteria to evaluate academic achievement vary among institutions.

In this dissertation, academic performance is measured by grades in lower secondary education. The variable ‘grades in lower-secondary’ has a scale from six to 10. It is worth noticing that six is the minimum requirement to pass lower secondary education. The School dropouts’ survey does not provide information about young people’s examination results in certain areas of knowledge.

- Type of institution

Previous research has reported that the type of institution attended makes an impact on individuals’ educational attainment and outcomes (Kerckhoff, 1993; Arum and Shavit, 1995 and Shavit and Muller, 2000). These studies have made a great emphasis on classifying schools by the extent to which they provide academic or vocational education. In simpler terms, general education aims to prepare individuals for getting access to universities whereas vocational education strongly aims to prepare individuals for entering to the labour force (West, 2013).

The Mexican education system offers different pathways to study upper secondary education including academic, vocational and technical options. However, this dissertation proposes an alternative differentiation of the upper secondary schools

which takes into account not only the distinction between academic and vocational education but also other sources of institutional differentiation such as the prestige or status of schools, administrative ascriptions, funding sources and curricular contents. The classification of institutions comprises six main categories:

- ❖ Academic traditional institutions (high status). This category comprises institutions which provides academic curricula, traditional in classroom schooling such as: baccalaureates of the Colegio de Bachilleres (Cobach/DGB) and schools linked to public universities such as baccalaureates of the Universidad Nacional Autónoma de México (UNAM), baccalaureates of the Universidad de Guadalajara (UdeG), baccalaureates of the (UAS), baccalaureates of the Universidad Autónoma de Nuevo León (UANL). These schools are well-known for leading students to enter higher education.
- ❖ Academic open and distance learning schools (low status). This category comprises four groups of schools which provides general-academic education with a strong or total component of distance learning schooling: EMSAD-Centers, Telebachillerato, Videobachillerato and Open Baccalaureates.
- ❖ Technological institutions managed by the federal government. This category includes schools centralised to the federal government via the Ministry of Education. There are three groups of schools included in this category. The first one depends administratively on the Directorate General for Industrial Technological Education (DGETI) CETIS/CBTIS. The second group of schools depends administratively on the Directorate General for Agriculture and Livestock Education (DGTA) CBTA/CBTF. The third group of schools depends administratively on the Directorate General for Sea and Maritime Education (DGE CyTM) CETMAR/CETAC. All these schools are funded mainly by the federal government.
- ❖ Technological institutions managed mainly by the states governments and by the Instituto Politécnico Nacional (IPN). This category comprises schools decentralised from the state governments although they have some federal participation: CECYTE and CECyT of the IPN. Half of the funding of these



types of schools came from the state governments and the other half came from the federal government.

- ❖ Technical institutions. This type of schools is part of the National College of Technical Education (Conalep) which offer the technical professional baccalaureate. Technical schools offer training for work, although they also provide some general education. Another key feature is that these schools are decentralised from the federal government (except schools placed in the states of Oaxaca and Mexico City).
- ❖ Private schools. This type of institutions is not funded by the federal or the state governments but by charging students the payment of tuition fees. The curriculum offered by these schools is usually academic.

It is worth highlighting that vocational education and training (VET) comprises technological baccalaureates (managed by the federal government and by the federal states) and technical professional baccalaureates.

- Aspire to study higher education (functioning)

Drawing on the capability approach, Hart (2013) proposes a conceptualization of aspirations in terms of functionings and capabilities. Hart notes that the functioning of aspiring is different from the capability to aspire. The former is actively constructed by abstract thinking and might further be developed through a variety of external forms of expression. The latter is conceived as the freedom and possibility to aspire. For Hart, if individuals face limitations to freely think and express their aspirations, then their freedom to choose functionings might be affected.

Hart conceptualizes educational aspirations as a functioning. More specifically, Hart (2013:1572) points out: “an individual may demonstrate the functioning of aspiring by saying that they aspire to go onto higher education but they may have experienced limited capability to aspire to other ways of being and doing they may have reason to value”. Thus, in Hart’s accounts, which this dissertation adopts, aspiration to higher education is conceived as a functioning. The data source in which this study relies does not provide information to assess individuals’ capability to aspire.

Previous studies in the field of education and social stratification and research on economics of education have taken into account the notion of aspirations. However, there are two main advantages of conceptualizing aspirations in terms of capabilities: (1) it raises awareness that aspirations for studying higher education might have not been freely made but influenced or constrained by, for instance, parents' expectations, cultural conventions or governmental policy initiatives and, (2) this conceptualization recognises that persons have a full range of aspirations - educational and life-related- that would be valuable to take into account by social researchers and policy makers. (Hart, 2013).

Moreover, this thesis acknowledges some limitations of the variable educational aspirations. This variable merely reflects persons' revealed aspirations and such aspirations might be subject to change over time due to internal and external influences (e.g. by dropping out from school).

Thus, those who participate in upper secondary education (students, graduates and dropouts from upper secondary education) were at different phases of their educational trajectories when the question of educational aspirations was asked. Consequently, those who dropout might be less likely to aspire studying higher education due to the fact of having interrupted their educational careers, while those who managed to remain and complete upper secondary education might be more inclined to show higher interest for pursuing university education. For these limitations, data on educational aspirations should be interpreted with caution.

- Freedom/power to choose school

Sen (1985) defines agency in terms of a person's freedom to do and act in order to reach the goals and values he/she reasonable views as relevant. Drawing on the work of Sen (1985, 1992, and 1999) and Rowlands (1997), Ibrahim and Alkire (2007) develop a set of indicators to measure agency and empowerment as well as a strategy to link these dimensions with survey questions. The indicators include four dimensions: empowerment as control over personal decisions, empowerment as autonomy to make choices, empowerment in community and empowerment as change. For Ibrahim and Alkire (2007:389), the indicator empowerment as the ability

to make choices, is frequently operationalized using data on ‘who makes the decisions’ in some specific sphere of life.

In line with Ibrahim and Alkire, this study conceives an individual’s ability to make educational choices as a proxy dimension of empowerment and agency. To be specific, the variable degree of freedom/power to choose school has three categories: it is coded 0 if individuals participate in the selection of school it is coded 1 if parents make the school choice and it is coded 2 if they are assigned to schools by institutional authorities. Thus, the extent to which individuals’ participation in educational decision making impacts on educational attainment will be explored.

Nevertheless, Ibrahim and Alkire (2007) note that by merely asking who makes the choice, it overlooks that individuals might freely delegate decision-making to another person due to that they are occupied or they are uninterested in making such a decision.

- Index of risk events

In the school dropouts survey there are seven personal events which young people may have faced and adversely affect their studies. These are: (1) parental problems, (2) unsafety in the pathway to school, (3) moving from home during studies (4) sickness or death in family, (5) marriage, (6) pregnancy, (7) family preferences towards education (e.g. no support of female education). All of them might increase the risk of dropping out and of no participating in upper secondary education.

From the seven variables described above, an index of risk events will be estimated by summing the ‘yes’ answer option of each question. The affirmative answers will indicate that the risk event indeed occurred during young people’s educational experience. All the affirmative values will receive a score of “1” and they will be added together to create a scale from zero to seven. A highest value in the scale will indicate a highest number of risk events that might increase the propensity to not participate or dropout from upper secondary education. Finally it is unnecessary to estimate a test of reliability such as Cronbach’s alpha coefficient for this scale since all these items are not measuring a latent concept (see de Vaus, 2004:184).

- Index of home/material possessions

According to Bourdieu, economic capital is the most material type of ‘capital’ and it can appear as money, properties/material rights or even as titles of nobility (Bourdieu, 1997). In this thesis, an index of material properties at home will be used as an indicator of economic capital.

In the School Dropouts Survey, respondents were asked if they had several possessions in their households. The list of possessions includes 14 goods and services: washing machine, stove, car, microwave, potable water, TV, DVD, refrigerator, cement floor, landline, internet, toilet with drainage and subscription to TV programmes.

Similarly to the elaboration of the index of risk events, an index of home possessions is constructed by adding the affirmative answer of each item. Each “yes” answer is scored 1 and it indicates that the person has the possession at home. The range of this index is from zero to 15. The more possessions individuals have, the higher the value of the index.

- Index of school disengagement

A scale is constructed from a set of binary variables on individuals’ attitudes and preferences towards education which indicates lack of interest or disposition to attend school. These variables are: (1) dislike studying, (2) disagreement with the disciplinary rules of the school, (3) thinking that studying is not very useful, (3) pursuing transferring studies to another school, (4) expulsion from school because of indiscipline, (4) expulsion from school because of failing exams, (5) thinking that having a job is more important than studying, (6) dislike school for being far away from home. This variable is multidimensional measurement of individuals’ preferences towards education and, therefore, it is to some extent linked to the capability approach. Finally, this scale is an ordinal variable that ranges from zero to six.

- Urbanisation

The variable geographical location comprises two categories: it is coded 0 if individuals live in urban areas (above 100,000 inhabitants) and semi-urban areas (between 2500-100,000 inhabitants) and it is coded 1 if individuals live in localities with have between 501 and 2499 inhabitants.

#### **4.6.5 Models and statistical procedure**

In this chapter the variables included in the statistical models were specified as well as the theoretical concepts linked to them. Nevertheless, supplementary information is needed about: (1) the nature of these variables (type and values), and (2) the criteria for conducting statistical modelling.

The main features of the outcome and predictors variables are displayed in Tables 7 to 10. Table 7 shows the characteristics of the dependent and explanatory variables included in the binomial logistic regression models that will answer research question 1. Table 8 presents the outcome and predictors included in the multinomial regression analysis that answer research question 2. Tables 9 and 10 shows the dependent and independents variables incorporated in the binomial logistic regression models that answer research questions 3 and 4 respectively.

The procedure to conduct the statistical modelling involves estimating a set of logistic regression models where some predictors are introduced first and others later because of: (1) theoretical reasons (to explore the influence of a single variable or a group of variables linked to different theories); and (2) to assess whether the effects of some factors (e.g. socio-cultural/ascriptive factors) change after introducing additional explanatory variables in the models.

Each statistical analysis starts exploring the influence of structural factors (social background and institutions) because of the assumption that structural influences might have happen first in persons' lives, however, there it is also assumed that human agency could make a difference on individuals' educational trajectories. So,

two variables, parental education and freedom to choose school, are of great interest because they also will be used to confirm or refute research hypotheses from Bourdieu's and Sen's theories.

Finally, this chapter has described the methodological strategy and it has specified the main features of the outcomes and predictors incorporated in the statistical analysis. The next three chapters move on to present and discuss the empirical results of this thesis.

**Table 7.- Binomial logistic regression model to predict the probability to participate in upper secondary education (age group 16-25)**

| Variable                               | Description   | Type     | Variable values*   |
|--|---|----------|--|
| <b>Outcome variable</b>                |   |          |  |
| Enrolment in upper secondary education | Have the person once been enrolled in upper secondary education (including students and dropouts) | Nominal  | 0= No<br>1= Yes  |
| <b>Explanatory variables</b>           |   |          |  |
| Socio-cultural/ascriptive              |   |          |  |
| Parental education                     | The highest level of education of parents   | Nominal  | 0= No parents with upper secondary<br>1= At least one parent with upper secondary<br>2= At least one parent with higher education. |
| Gender                                 | Gender  | Nominal  | 0= Male<br>1= Female   |
| Ethnicity                              | Language spoken at home   | Nominal  | 0= Non-indigenous<br>1= Indigenous   |
| Type of institution                    |   |          |  |
| Type of the last school attended       | Public or private lower secondary school  | Nominal  | 0=Private or both (public and private)<br>1= Public  |
| Academic performance                   |   |          |  |
| Educational achievement                | Grades in lower secondary education   | Interval | From zero to 10  |
| Urbanisation                           |   |          |  |
| Urbanisation                           | Level of urbanisation of the neighbourhood  | Nominal  | 0= Semi-urban and urban centres<br>1= Rural areas  |
| Educational aspirations                |   |          |  |
| Aspirations                            | Aspire to study higher education  | Nominal  | 0= No aspire to study higher education<br>1= Aspire to study higher education  |

Source: my own elaboration.

**Table 8.- Multinomial logistic regression model to predict the chances to enter different types of upper secondary schools (age group 16-25)**

| Variable   | Description   | Type     | Variable values  |
|--|---|----------|--|
| <b>Outcome variable</b>  |   |          |  |
| Access to different types of institutions in upper secondary education | Have the person once been enrolled in upper secondary education (including students and dropouts) | Nominal  | 0= never enrolled<br>1=enrolled in a technical school<br>2=enrolled in a technological federal school<br>3=enrolled in a technological school managed by the state governments<br>4=enrolled in an academic traditional school<br>5= enrolled in an open and distance learning programme<br>6=enrolled in some other school<br>7= enrolled in a private school |
| <b>Explanatory variables</b>   |   |          |  |
| Socio-cultural/ascriptive characteristics                              |   |          |  |
| Parental education   | The highest level of education of parents   | Nominal  | 0=No parents with upper secondary education<br>1= At least one parent with upper secondary<br>2= at least one parent with higher education.  |
| Gender   | Gender  | Nominal  | 0= Male<br>1= Female   |
| Ethnicity  | Language spoken at home   | Nominal  | 0= Non-indigenous<br>1= Indigenous   |
| Institutional factors  |   |          |  |
| Type of the last school attended                                       | Public or private lower secondary school  | Nominal  | 0= Private or both (public and private)<br>1=Public  |
| Academic performance   |   |          |  |
| Educational achievement  | Grades in lower secondary education   | Interval | From zero to 10  |
| Urbanisation   |   |          |  |
| Urbanisation   | Level of urbanisation of the neighbourhood  | Nominal  | 0=Semi-urban and Urban centres<br>1= Rural areas   |
| Educational aspirations  |   |          |  |
| Aspirations  | Aspire to study higher education  | Nominal  | 0= No aspire to study higher education<br>1= Aspire to study higher education  |

Source: my own elaboration.



**Table 9.- Binomial logistic regression model to predict the probability to complete upper secondary education instead of dropping out (age group 16-25)**

| Variable                                  | Description   | Variable Type | Variable values*  |
|---|---|---------------|---|
| <b>Outcome variable</b>                   |   |               |   |
| Completion of upper secondary             | Completion/graduation of upper secondary education        | Nominal       | 0= Dropouts<br>1= Graduates   |
| <b>Explanatory variables</b>              |   |               |   |
| Socio-cultural/ascriptive characteristics |   |               |   |
| Parental education                        | The highest level of education of parents                 | Nominal       | 0=No parents with upper secondary education<br>1.- At least one parent with upper secondary<br>2.-At least one parent with higher education   |
| Home possessions                          | Index of home possessions                                 | Interval      | From 1 to 14 possessions  |
| Gender                                    | Gender  | Nominal       | 0= Male<br>1= Female  |
| Ethnicity                                 | Language spoken at home                                   | Nominal       | 0= Non-indigenous<br>1= Indigenous  |
| Age                                       | Age of the respondent                                     |               | 0=16<br>1=17<br>2=18<br>3=19 and older  |
| Institutional factors                     |   |               |   |
| Type of institution                       | Type of institution attended in upper secondary education | Nominal       | 0= Academic traditional school (high status)<br>1= Technical school<br>2= Technological schools managed by the federal government<br>3= Technological schools managed by the state governments<br>4= Private school<br>5= Academic open and distance learning<br>6= Other |
| Academic performance                      |   |               |   |
| Prior educational achievement             | Grades in lower secondary                                 | Interval      | From 6 to 10  |
| Access to scholarship                     |   |               |   |
| Scholarship                               | Access to scholarship during studies                      | Nominal       | 0=no<br>1= yes  |
| A human agency dimension                  |   |               |   |
| Freedom to choose school                  | Degree of freedom/power to choose school                  | Nominal       | 0=Individuals' choice<br>1= Parents' choice   |

|                                 |  |          |                          |
|---------------------------------|--|----------|--------------------------|
|                                 |  |          | 2=Institutional decision |
| Index of school (dis)engagement | Individuals' attitudes and preferences towards education (indicating lack of interest or disposition to attend school) | Interval | From zero to six         |
| Index of risk events            | Uncertain events which might adversely affect studies  | Interval | From zero to seven       |

Source: my own elaboration.

**Table 10.- Binomial logistic regression model to predict the probability to enter higher education conditional on having completed upper secondary education**

| Variable                                  | Description  | Type     | Variable values*   |
|---|--|----------|--|
| <b>Outcome variable</b>                   |  |          |  |
| Access to higher education                | Have the person once been enrolled in higher education (including all the persons in the survey that conclude upper secondary) | Nominal  | 0= No<br>1= Yes  |
| <b>Explanatory variables</b>              |  |          |  |
| Socio-cultural/ascriptive characteristics |  |          |  |
| Parental education                        | Highest educational level  | Nominal  | 0=No parents with upper secondary<br>1= at least one parent with upper secondary,<br>2= at least one parent with higher education.   |
| Home possessions                          | Index of home possessions  |          | From 1 to 14 possessions   |
| Gender                                    | Gender   | Nominal  | 0= Male<br>1= Female   |
| Ethnicity                                 | Language spoken at home  | Nominal  | 0= No indigenous<br>1= Indigenous  |
| Institutional factors                     |  |          |  |
| Type of last school attended              | Type of upper secondary school attended  | Nominal  | 0=Academic traditional schools (high status)<br>1= Technical school<br>2=Technological schools managed by the federal government<br>3=Technological schools managed by the state governments<br>4= Academic open and distance learning schools<br>5= Private schools<br>6= Other |
| Academic performance                      |  |          |  |
| Educational achievement                   | Grades in upper secondary education  | Interval | From zero to 10  |
| A human agency dimension                  |  |          |  |
| Freedom to choose school                  | Degree of freedom/power to choose school   | Nominal  | 0=Individuals' choice<br>1= Parents' choice<br>2=Institutional decision  |

Source: my own elaboration.

## Chapter 5 First school transition: participation in upper secondary education

### 5.1 Introduction

The primary aim of this research is to examine what factors influence the chances of attaining three school transitions in the Mexican education system: participation in upper secondary education; completion of upper secondary instead of dropping out and progression to higher education. This chapter will discuss empirical findings related to the first transition. More precisely, it will examine the extent to which parental education, gender, ethnicity, previous academic performance, the type of lower-secondary school attended, urbanisation and aspirations are associated to the chances to participate in upper secondary education. It is worth noticing that this dissertation adopts the definition of participation proposed by Raffe, *et al.* (2001) who saw it as the proportion of individuals of specific age groups that having completed the previous educational level participate in secondary education.

Besides, the validity of two research hypotheses will be assessed in this chapter. The first hypothesis was formulated drawing on Bourdieu's sociocultural reproduction theory and it says that: *Individuals' opportunities to attain higher educational transitions in Mexico are influenced by structural factors such as socioeconomic and cultural resources. Persons from more advantageous social origins are more likely to participate in upper secondary and higher education because their wealthier living conditions allow them to stay longer in schools.*

As it was mentioned earlier, binomial logistic regression analysis will be used to test this hypothesis. To be specific, this hypothesis will be confirmed if persons who have parents with higher levels of education are more likely to enter upper-secondary education than those who have less educated parents.

Moreover, multinomial regression analysis is used to test a hypothesis that was formulated drawing on the effectively maintained inequality approach developed by Lucas (2001) and it states that: *In the Mexican context, macro-level patterns of social differences in educational attainment occur because people from higher social*

*backgrounds use their socioeconomic advantages to attain higher school transitions and to enter high quality institutions. By having access to a high quality institution in one stage, individuals from higher social backgrounds are more likely to enter high quality schools in subsequent educational paths*

In order to test this hypothesis the strength and type of the association between the variable parental education and the probability of attending different types of institutions will be explored. Lucas' assumption(s) will be valid for the Mexican case if persons who have parents with higher levels of schooling are more likely to enter high status schools. It is considered that more advantageous institutions are: academic traditional schools, private schools and technological schools of the state governments.

Section 1 presents the results of two sets of binomial logistic regression models estimated to predict the probability of gaining a place in upper secondary schools. The first set of models examines the age group 16 to 25 who have completed lower-secondary. The second set of logistic regression filters the sample and it includes individuals from 16 to 18 years old who have finished lower-secondary education. Section 2 discusses the results of a multinomial logistic regression analysis that takes into account the institutional diversity of upper secondary education. The analyses is extended in order to examine to what degree a range of factors influences the probabilities of following different educational paths in upper secondary schooling. In the last section some final comments are presented.

## **5.2 Previous research<sup>11</sup>**

As it was discussed in chapter four, empirical investigations conducted for industrialized countries have explored social background effects on educational transitions and the findings are varied. Some widely recognised investigations on this topic are the pioneer work conducted by Mare (1980 and 1981) and the international comparative study edited by Shavit and Blossfeld (1993). These studies found that social origin effects tend to be stronger at earlier stages of educational trajectories

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<sup>11</sup> This section includes a brief summary of some studies that I have discussed in previous chapters. Additionally, it extends the discussion on by commenting studies from Mexico.

than in later educational phases. Another well-known work is the research of Raftery and Hout (1993) for the case of Ireland. This study found that the influence of social background was more pronounced on the probability to continue in secondary school than on the chances of making later educational transitions.

Moreover, the sequential model of school transition has been further developed by a number of scholars. By a way of illustration, Breen and Jonsson (2000) question the hypothesis that individual educational trajectories are always manifested as a set of binary choices. They argue that the educational systems of many countries have multiple and different educational options. Therefore, Breen and Jonsson recommend using multinomial logistic regression models in order to take into account the institutional characteristics of diversified educational systems. Similarly, Lucas (2001) states that individuals decisions to pursue higher levels of education are not totally dichotomous because individuals also have to choose their location among different educational alternatives.

In Latin America, some comparative studies have investigated trends over time of social background effects on educational attainment. Torche (2010) investigates inequalities in educational attainment in Brazil, Chile, Colombia and Mexico during a period of economic crisis. Torche found that social background effects on the chances to complete primary and to enter secondary education declined over time. Conversely, socioeconomic differences on completion of secondary education and access to postsecondary schooling increased for cohorts born after the 1980s. In another study, Marteleto, *et al.* (2012:13), found declines in inequalities in access and completion of primary education in Brazil, Chile, Mexico and Uruguay. Besides, they identify reductions in inequalities in transitioning to high schools in Brazil and Chile, whereas, for the cases of Mexico and Uruguay, they note that influence of social background in access to high schools has remained stable.

In Mexico, a considerable amount of literature has been published on inequalities in education. These studies have revealed the type and magnitude of the association between social background and other factors with individual's educational opportunities and outcomes (Munoz-Izquierdo, 1996, 2009; Martinez, 2002; Bracho,

2002; Sandoval-Hernandez, 2007, Villa-Lever, 2007; Fernandez, 2008 and Blanco, 2009). Moreover, inequalities in educational achievement have been explored drawing on the perspective of school effectiveness (Sandoval-Hernandez, 2010 and Blanco, 2009). Regarding educational attainment, previous research has indicated that social inequalities in years of schooling declined over time for the whole country (Martinez, 2002, Fernandez, 2008) and also for some federal states of Mexico (Villarreal and Escobedo, 2009).

More recently, investigators have examined the impact of social background and other factors on educational transitions (Solís, 2013; Solís, Rodriguez and Brunet, 2013 and Blanco, Solís and Robles, 2014). These studies have found that social background effects are greater in later transitions that display more social selection (Solís, 2013). Besides, for the transition from lower secondary to upper secondary education in Mexico City, research found that individuals from higher social backgrounds are more likely of entering schools linked to public universities such as baccalaureates of the Universidad Nacional Autónoma de Mexico (UNAM) and the Instituto Politécnico Nacional (IPN) (Solís *et al.*, 2013 and Solís, 2014).

Interestingly, research in this area highlights the need for a broad investigation of individuals' educational decisions and how different school factors make an impact on educational trajectories (Blanco, *et al.*, 2014).

The analysis reported in this chapter is different in several aspects to previous research in the field of educational transitions. First, this study considers that it is restrictive conceiving human beings merely by their position in the social structure (Sen, 2009): therefore, emphasis lies on investigating other aspects of human diversity beyond social class (e.g. ethnicity, aspirations, place of residence). It is worth noticing that prior research has not examined in much detail indigenous' educational trajectories at the system level which might be explained by the fact that it is usually difficult to obtain data on indigenous groups after lower secondary education (Schmelkes, 2003). Second, this section investigates alternative dimensions of institutional differentiation that has not been previously investigated. Third, little is known about the extent to which previous academic achievement and the place of residence make an impact on the chances of entering different types of

institutions in upper secondary education. This thesis explores these dimensions using national survey data that has not been used before to examine educational transitions.

## **5.3 Empirical results**

Mexico aims to expand participation in higher levels of education as a strategy to promote human and economic development, social inclusion and to become a more democratic society. Therefore, in recent years there has been an increasing concern over the causes for non-participation in higher educational levels. Official statistics from Mexico offers some preliminary insights on the factors influencing non-participation in higher educational stages. For instance, in chapter one it was discussed that individuals' socioeconomic characteristics such as parental education, ethnicity, poverty conditions and income level, among other factors, are important variables linked to the levels of school attendance for the group of individuals aged 15-17 during 2000 and 2012 in Mexico.

However, it was also noticed that although school attendance rates are estimated for those in the typical age to attend upper secondary education, these indexes do not inform us at what educational level youths are enrolled. In order to go beyond these limitations, this section examines data from the school dropout's survey to identify participation rates in upper secondary education for individuals of different age groups according to several characteristics. Before discussing the results of the statistical modelling, some descriptive statistics on participation are commented.

### **5.3.1 Descriptive analysis**

The first thing to notice is that in the sample under analysis for this transition, the majority of individuals who complete lower secondary education are able to enter the next educational stage of the Mexican education system. To be specific, 86.5 per cent of graduates from lower secondary enter upper secondary education (Table 11). This figure resembles data estimated by INEE (2013a) who states that 87 per cent of the population who finished lower secondary was matriculated in upper secondary education during the school year 2012-2013.



**Table 11.- Percentage of persons aged 16-25 who participate in upper secondary education**

|                  | Percentage |
|------------------|------------|
| Participants     | 86.5       |
| Non participants | 13.5       |
| Total            | 8013       |

Note: The percentages were estimated based on weighted data.

Moreover, parental education is generally seen as a factor strongly related to persons' educational attainment. Table 12 shows participation rates by the highest level of education of parents. Of the total number of individuals who have at least one parent with university studies, 96.7 per cent enrolled in upper secondary education; whereas, this figure for individuals who have no parents with high school is 81.1 per cent. Data from INEE is consistent with this figure; more specifically, in 2012, the school attendance rate for young people aged 15-17 who have parents with higher education studies is 97.4 per cent (INEE, 2013).

**Table 12.- Percentages of persons who participate in upper secondary education by parental education**

|                  | No parents with upper secondary | At least one parent with upper secondary | At least one parent with higher education |
|------------------|---------------------------------|--|---|
| Non-participants | 18.8                            | 5.6                                      | 3.3                                       |
| Participants     | 81.1                            | 94.4                                     | 96.7                                      |
| Total            | 5,229                           | 1,389                                    | 2,728                                     |

Note: The percentages were estimated based on weighted data.

Table 13 shows differences in participation according to gender. It is interesting to note that a large proportion of men respondents, 87.7 per cent participate in upper secondary education and this figure is slightly lower for the group of female respondents due to 85.5 per cent of women enter upper secondary education.

**Table 13.- Percentages of persons who participate in upper secondary education by gender**

|                  | Men   | Women |
|------------------|-------|-------|
| Non-Participants | 12.3  | 14.5  |
| Participants     | 87.7  | 85.5  |
| Total            | 3,880 | 4,133 |

Note: The percentages were estimated based on weighted data.

Moreover, participation rates are slightly higher for younger generations. More specifically, Table 14 shows that participation rates are a little higher for the group of

young people aged 16-18 than for the group of individuals aged 19-25. The specific difference is: 87.2 per cent of those aged 16-18 enrolled in upper secondary education and this figure for individuals aged 19-25 is 85.7 per cent.

**Table 14.- Percentages of persons who participate in upper secondary education according to age groups**

|                  | Age group: 16-18 | Age group: 19-25 |
|------------------|------------------|------------------|
| Non-Participants | 12.8             | 14               |
| Participants     | 87.2             | 85.7             |
| Total            | 3,790            | 4,223            |

Note: The percentages were estimated based on weighted data.

In this thesis, 4.7 per cent of the sample of the first school transition indicates that they either speak or understand an indigenous language. This percentage is near to the proportion of indigenous people identified for the whole country (6.6 per cent) (see Chapter 4). Therefore, it can be argued that the variable ethnicity which is used in this dissertation is able to capture a good number of indigenous persons who are usually difficult to identify.

Table 15 shows participation rates of indigenous and non-indigenous people. The results indicate that of the total number of individuals who are not indigenous, 86.8 per cent enrolled in upper secondary education; whereas, this figure is lower for individuals who are indigenous (80.8 per cent).

**Table 15.- Percentages of persons who participate in upper secondary education by ethnicity**

|                  | Non-indigenous | Indigenous |
|------------------|----------------|------------|
| Non-Participants | 13.2           | 19.2       |
| Participants     | 86.8           | 80.8       |
| Total            | 7,636          | 377        |

Note: The percentages were estimated based on weighted data.

Furthermore, Table 16 illustrates that of the total number of youths who graduate from private lower secondary schools, 94.7 per cent enter upper secondary education whereas this figure is lower for those who graduated from a public lower secondary school (85.7 per cent).

**Table 16.- Percentages of persons who participate in upper secondary education by the type of school attended in lower secondary education**

|                  | Public | Private |
|------------------|--------|---------|
| Non-Participants | 14.3   | 5.3     |
| Participants     | 85.7   | 94.7    |
| Total            | 7,278  | 735     |

Note: The percentages were estimated based on weighted data.

Moreover, Table 17 shows that of the group of individuals who aspire to study higher education, 94 per cent enter upper secondary schools and this percentage is lower for those who do not want to pursue university studies (66 per cent).

**Table 17.- Percentages of persons who participate in upper secondary education according to educational aspirations**

|                  | Do not aspire to study higher education | Aspire to study higher education |
|------------------|---|----------------------------------|
| Non-Participants | 34                                      | 6                                |
| Participants     | 66                                      | 94                               |
| Total            | 2,438                                   | 5,575                            |

Note: These percentages were estimated based on weighted data.

Differences in grades in lower secondary between participants and non-participants in upper secondary schools are displayed in Table 18. The results indicate that the mean in grades for participants is 8.27, while this figure is lower for non-participants: 7.9. It is worth noticing that grades were obtained by asking to the youngsters their overall average in academic achievement at the time of completing their studies of lower secondary education (see the chapter four).

**Table 18.- Means differences in academic performance between participants and non-participants in upper secondary education**

|                  | Observations | Mean (Grades) | Std. Error |
|------------------|--------------|---------------|------------|
| Non-participants | 952          | 7.9           | .02        |
| Participants     | 7061         | 8.2           | .009       |
| Combined         | 8013         | 8.2           | .008       |

Once descriptive statistics of key variables were discussed, the section that follows move on to assess the explanatory influence of a range of factors on the chances to participate in upper secondary education for individuals aged 16 plus.

### **5.3.2 Binomial logistic regressions models for the age group 16-25 (AMEs)**

In order to explore what factors are significantly associated to the chances of participating in upper secondary education a set of logistic regression models is estimated. For all the models the dependent variable is binary (1=enrolled/0=never enrolled). Besides, seven explanatory variables are included in the analysis: the highest educational level of parents, age, gender, and ethnicity, type of institution attended in lower secondary, grades, and aspirations.

The results are presented as a set of models in order to explore whether the effect of some explanatory variables change after incorporating some other explanatory variables in the analysis. The findings of the binary logistic regression analysis are displayed in Table 19. The coefficients are expressed in terms of average marginal effects (AMEs). The average marginal effect of one explanatory variable on the outcome variable is calculated from a regression model at average values of all the other explanatory variables.

Model 1 (Table 19) shows the effect of parental education in the probability to participate in upper secondary education when no other variables are included in the model. The variable parental education is grouped into three categories and the reference category is no parents with upper secondary education. The results indicate that the probability of entering upper secondary significantly increases as do the educational level of parents. Specifically, the probability of participating in upper secondary for young people who have at least one parent with higher education is 15.6 per cent greater as compared to having no parents with upper secondary education as a maximum level of schooling whereas this figure for those who have at least one parent with upper secondary education is 13.2 per cent higher than the reference category. These results were obtained holding all other variables at their average values.

Model 2 explores the effect of age, gender and ethnicity on the probabilities of participating in upper secondary education. The variable age was collapsed into two categories: 16-18 and 19-25 and the reference category is having 16-18 years old.

The results indicate that there is not a significant effect of age on the probability of enrolment in upper secondary education. Conversely, gender is a predictor of enrolment because the probability of entering upper secondary is 1.6 per cent lower for women than for men. In addition, there are not significant statistical differences in the probability of entering upper secondary education for indigenous and non-indigenous.

Model 3 adds the variables: type of lower secondary school attended and grades in lower secondary education. The results indicate that for those individuals who studied in a private lower secondary school the probability of entering upper secondary education is 5.9 per cent higher than the probability for those who studied in a public lower secondary school. Besides, for one unit increase in grades, the probability of enrolling in upper secondary education raises by 5.5 per cent.

Model 4 examines the effect of urbanisation (living in urban or rural areas) in the chances of enrolment in high schools. The results indicate that for those who live in less urbanized regions, the probability of enrolment in upper secondary education is 2.5 per cent lower than this figure for those who live in more urbanised places. These estimates were obtained holding all other variables at their average values.

Finally, Model 5 explores the influence of aspirations on the chances of enrolment in upper secondary education. The results indicate that the probability of entering upper secondary is 20.9 per cent higher for those who aspire studying in higher education than the probability for those who do not have such aspiration. Besides it is interesting to note that after introducing the effect of aspirations, the urbanisation variable is no longer significant.

The results of Model 5 also indicates that after controlling for several factors such as age, gender, ethnicity, type of lower secondary school attended, grades and aspirations, the effect of social origin is less strong. For instance, in Model 1, the probability of entering upper secondary is 15.6 per cent higher for those who have parents with university studies and this figure is 10.5 per cent in Model 5. Another interesting result to emerge from the data is that the effect of grades decreases after

controlling for aspirations. All these estimates were obtained holding all other explanatory variables at their average values.

**Table 19.- Binomial logistic regression models to predict the probabilities to participate in upper secondary education for the age group 16-25 (AMEs)**

| Variable   | Model 1 | Model 2 | Model 3 | Model 4  | Model 5  |
|--|---------|---------|---------|----------|----------|
| <b>Parental education (Ref. no parents with upper secondary)</b> |         |         |         |          |          |
| At least one parent with UPS                                     |         | .130*** | .120*** | .117***  | .090***  |
|  | (.01)   | (.01)   | (.01)   | (.01)    | (.01)    |
| At least one parent with H.E                                     |         | .154*** | .141*** | .139***  | .105***  |
|  | (.008)  | (.008)  | (.009)  | (.009)   | (.01)    |
| <b>Age (Ref. 16-18)</b>  |         |         |         |          |          |
| 19 and older   |         | -.006   | -.007   | -.008    | .010     |
|  |         | (.009)  | (.009)  | (.009)   | (.008)   |
| <b>Female</b>  |         |         |         |          |          |
|  |         | -.016*  | .029*** | -.029**  | -.027*** |
|  |         | (.009)  | (.009)  | (.009)   | (.008)   |
| <b>Indigenous</b>  |         |         |         |          |          |
|  |         | -.03    | -.030   | -.020    | -.015    |
|  |         | (.023)  | (.024)  | (.024)   | (.021)   |
| <b>Type of lower secondary school (Ref.Public)</b>               |         |         |         |          |          |
| Private school (or both)   |         |         | .059*** | .057***  | .048***  |
|  |         |         | (.016)  | (.016)   | (.016)   |
| <b>Grades in lower secondary</b>                                 |         |         |         |          |          |
|  |         |         | .055*** | .055***  | .028***  |
|  |         |         | (.006)  | (.006)   | (.006)   |
| <b>Less urbanized regions</b>                                    |         |         |         |          |          |
|  |         |         |         | -.027*** | -.013    |
|  |         |         |         | (.013)   | (.01)    |
| <b>Aspire to study higher education</b>                          |         |         |         |          |          |
|  |         |         |         |          | .209***  |
|  |         |         |         |          | (.012)   |
| Num. Observations  | 8,013   | 8,013   | 8,013   | 8,013    | 8,013    |

Note: my own elaboration from the School dropouts' survey for Mexico, 2011. Data weighted using probability weights. Average marginal effects are reported and linearized standard errors are shown in parenthesis. Legend: \* p<.1; \*\*p<.05; \*\*\* p<.01

### 5.3.3 Binomial logistic regression models for the age group 16-18 (AMEs)

This section displays the results of five binomial logistic regression models that were estimated for a subset of the sample: the group of individuals aged 16 to 18. This

subpopulation was selected for two main reasons (1) young people from 16 to 18 years old are in the typical age to attend upper secondary education; (2) younger generations are more likely to have faced the effects of the new regulations implemented in upper secondary education by the Mexican government. Some of these regulations are included in the Reform of the upper secondary level implemented from 2007 onwards (*Reforma Integral de la Educación Media Superior, RIEMS*)<sup>12</sup>.

The results displayed in Table 20 shows that, for all the models, parental education has a strong effect on the probability to participate in upper secondary education. Besides, gender does not affect the chances of entering upper secondary education; similarly, ethnicity does not influence the opportunities of entering the upper secondary level (Models 1 to 5).

Furthermore, the probability of entering upper secondary education is around 8 per cent higher for those who studied in a private lower secondary school as compared to having studied in a public school (Models 3 to 5). Besides, for one unit increase in grades the probability of enrolment increases by 4 per cent (Model 5). On the other hand, for those individuals who aspire to enter university, the probability of enrolling in upper secondary is 17 per cent higher than for those persons who do not have such aspiration. Finally, after controlling for aspirations, the urbanisation variable does not predict the likelihood of participating in upper secondary for the age group 16-18 (Model 5).

To sum up, it is relevant to note two aspects. First, the findings of this study suggest that the effects of the variable ‘grades in lower secondary’ are higher for the age group 16-18 than for the age group 16-25. Second, unlike the results of the regression analysis for the age group 16-25, for those individuals aged 16-18, there were no gender differences on the likelihood of participating in upper secondary education. Further research should investigate the extent to which these findings

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<sup>12</sup> See chapter eight for further comments on the new educational policies that are being implemented in Mexico.

might be associated to the educational policies that were more recently implemented in upper secondary education in Mexico.

**Table 20.-Binomial logistic regression models to predict the probabilities to participate in upper secondary education for the age group 16-18 (AMEs)**

| Variable   | Model 1 | Model 2 | Model 3 | Model 4  | Model 5 |
|--|---------|---------|---------|----------|---------|
| <b>Parental education (Ref. no parents with upper secondary)</b> |         |         |         |          |         |
| At least one parent with USE                                     |         |         |         |          |         |
| .119***  |         | .117*** | .104*** | .103***  | .084*** |
|  | (.01)   | (.01)   | (.01)   | (.01)    | (.01)   |
| At least one parent with HE                                      |         |         |         |          |         |
| .132***  |         | .131*** | .114*** | .112***  | .086*** |
|  | (.01)   | (.01)   | (.01)   | (.01)    | (.01)   |
| <b>Female</b>  |         | .017    | -.002   | -.002    | -.004   |
|  |         | (.01)   | (.01)   | (.01)    | (.01)   |
| <b>Indigenous</b>  |         | -.032   | -.02    | -.019    | -.014   |
|  |         | (.03)   | (.02)   | (.02)    | (.02)   |
| <b>Type of lower secondary school (Ref.Public)</b>               |         |         |         |          |         |
| Private school (or both)   |         |         | .083*** | .082***  | .078*** |
|  |         |         | (.01)   | (.01)    | (.01)   |
| <b>Grades in lower secondary</b>                                 |         |         | .064*** | .064***  | .042*** |
|  |         |         | (.008)  | (.008)   | (.008)  |
| <b>Less urbanized regions</b>                                    |         |         |         | -.015*** | -.011   |
|  |         |         |         | (.01)    | (.01)   |
| <b>Aspire to study higher education</b>                          |         |         |         |          | .176*** |
|  |         |         |         |          | (.02)   |
| Num. Observations  | 3,790   | 3,790   | 3,790   | 3,790    | 3,790   |

Note: my own elaboration from the School dropouts' survey for Mexico, 2011. Data weighted using probability weights. Average marginal effects are reported and linearized standard errors are shown in parenthesis. Legend: \* p<.1; \*\*p<.05; \*\*\* p<.01

### 5.3.4 Summary and discussion

This section of the thesis set out with the aim of examining the factors influencing enrolment in upper secondary education. Therefore, two sets of binomial logistic regression models were estimated. The first group of models takes into account a sample of individuals aged 16 to 25 who completed lower secondary education. The



second set of regressions includes only the sample of individuals from 16 to 18 years old who have finished lower secondary education.

The results suggest that for all the models (age groups 16-25 and 16-18): the higher the educational level of parents, the greater the chances of entering upper secondary school. These findings are consistent with prior research on education and social stratification that has pointed out that social origin is an important predictor of individuals' educational opportunities and outcomes (Breen and Jonsson, 2005). More importantly, the evidence of this chapter shows that social origin has an effect on the opportunities of entering upper-secondary education; therefore, it confirms research hypothesis from Bourdieu's perspective who specifically states that persons from higher social origins are more likely to reach higher levels of schooling.

Moreover, contrary to expectations, this study did not find significant differences in the chances of enrolment in upper secondary education related to ethnicity. It seems possible that the indigenous persons, who are able to make this school transition, are those who have developed certain skills and abilities that allow them to achieve satisfactory educational outcomes in spite of adversity. Some studies from Mexico have documented that indigenous persons are less likely to attend earlier educational stages than non-indigenous persons. For instance, according to INEE-UNICEF (2016:51), out of the total population of indigenous persons who are in the typical age group to attend lower secondary education (12-14 years old), 12.6% do not attend schools and this figure for non-indigenous is 5.7 per cent.

On the other hand, this research found that for the sample of individuals aged 16-25, the level of urbanisation of the region in which youngsters live is associated with the likelihood of enrolment in upper secondary education. Specifically, individuals who live in rural areas were less likely to enter upper secondary than those who live in more urbanised centres. This finding points out the limited presence of upper secondary schools in rural contexts. On this matter, a former Mexican minister of education mentioned that the main strategy that will be implemented to broaden

participation in upper secondary education in rural areas is to expand the offer of communitarian tele-baccalaureates<sup>13</sup>.

Moreover, aspirations matter on the opportunities to attain this educational transition. As it was illustrated, young people who want to pursue a degree were more likely to participate in upper secondary education than youngsters who does not have such aspiration. In addition, high educational aspirations seem to mediate the effect of urbanisation on the chances to attend upper secondary education. This result might be explained due to individuals that live in rural areas, but who have aspirations for entering higher education, may make extra efforts to attend upper secondary schools in a way that they may move to live in semi-urban or urban places where more educational institutions are placed or they may be willing to use daily transportation services, from rural areas to the cities, in order to be able to attend schools.

Another important finding is that for all the models (age groups 16-25 and 16-18), the type of lower secondary attended, previous academic performance and educational aspirations are associated to the chances of entering upper secondary education. Individuals who studied in private schools were more likely to enrol in upper secondary education than those who studied in public schools. Similarly, individuals who attained higher grades in lower secondary have an advantage for gaining a place in upper secondary schools.

Finally, it is worth noticing that gender differences in participation were found for the age group 16-25 but not for the age group 16-18. These results are promising because suggest a reduction of gender inequalities in access to upper secondary education over time.

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<sup>13</sup> Sep ampliara escuelas medio superior en zonas Rurales. (25 de Noviembre de 2014). El Universal. Retrieved from <http://archivo.eluniversal.com.mx/nacion-Mexico/2014/sep-ampliara-escuelas-media-superior-en-las-zonas-rurales-1057022.html>

## 5.4 Chances of entry to different types of institutions

The empirical results displayed in the previous section indicate that parental education, the type of lower secondary school attended, previous academic performance, the level of urbanisation of the region and aspire to study higher education significantly influence the chances of attending upper secondary education. However, little is known about to what degree these and other factors impact on the likelihood of entering at different types of institutions. Therefore, in this section multinomial logistic regression models are estimated because they allow examining the effect of several variables on the probability of entering diverse institutions compared to not attending upper secondary education at all. Breen and Jonsson point out an advantage of taking into account the institutional characteristics of educational systems:

A model of educational transitions that can take into account the institutional structure of the school system is better able to explaining why educational choices differ according to social origin, sex, ethnicity and other exogenous variables- and such a model is more appropriate for identifying at which transition the impact of such variables is greatest (Breen and Jonsson, 2000:759).

It is worth noticing that unlike the structure of elementary education, the upper secondary education system in Mexico is diversified because it provides a broad range of educational options which differ in several aspects such as curriculum, duration of studies, prestige policies and financial resources (INEE, 2013b). Thus, the educational options have different ends and as a consequence led students into different pathways such as continuing higher education or entering early into the labour market. In addition, it is complicated for students moving from one type of school to another mainly because of the curricular differentiation among the institutions. For instance, this might imply that when students transfer their studies to a new school, they may need to take some extra courses that were not offered in the previous institution.

Furthermore, this dissertation uses data from the School dropouts' survey for Mexico to propose an alternative classification of the institutions of upper secondary

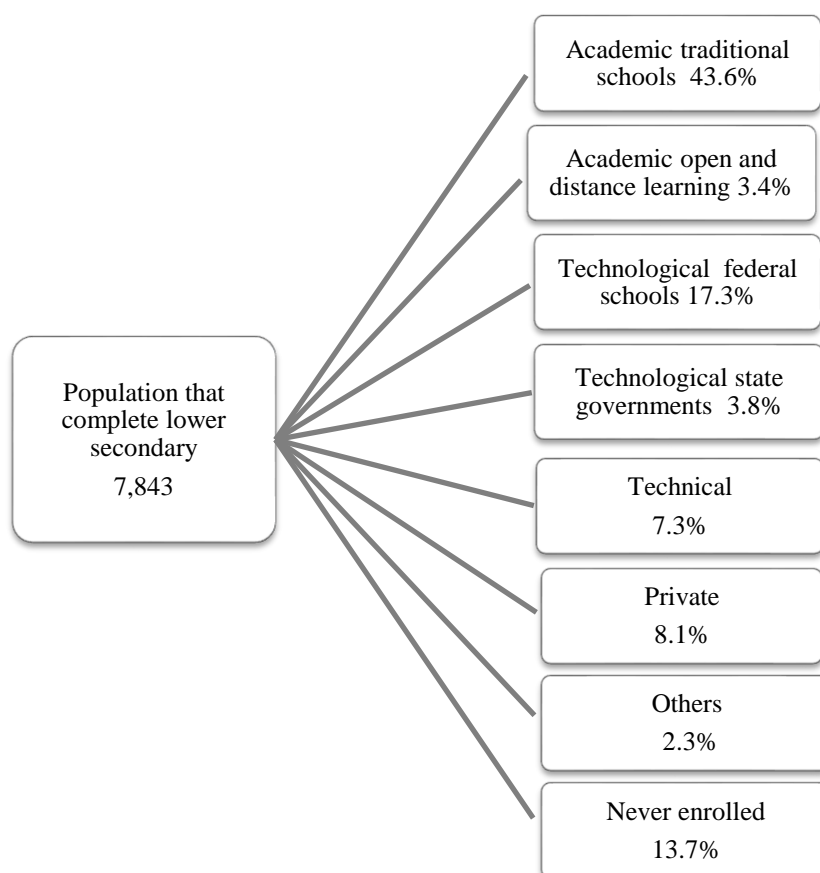
education. As it was discussed in the methodological chapter (see chapter four) the classification of institutions comprises six main categories academic traditional institutions, open and distance learning programmes, technological schools managed by the federal government, technological schools managed by the state governments, technical schools and private schools.

It is worth emphasising that this categorization differentiates institutions according to several dimensions: a) type of curriculum (academic, technological and technical); b) administrative adscription (managed by the federal or managed partially by the state governments); and c) it also provides a distinction between private and state provision of schools.

### **5.4.1 Descriptive analysis**

Before turning to the results of the multinomial models, in the next lines some descriptive statistics are displayed. Figure 5 shows the distribution of the population of individuals aged 16-25 that complete lower secondary education by the pathway they followed after graduating. The first thing to notice is that around 43 per cent of the individuals attended academic high status institution; 17 per cent attended technological schools managed by the federal governments and almost 8 per cent attended private institutions.

**Figure 5.- Educational pathways followed by the population aged 16-25 that complete lower secondary education**



Note: these percentages were estimated based on weighted data. The category ‘others’ comprises institutions that were not possible to array. Although this option is included in the statistical modelling it will not be discussed in the findings chapters.

Table 21 shows that out of the total number of individuals who have at least one parent with higher education, 48 per cent entered academic traditional institutions and 18.6 per cent attended private institutions. Whereas, for individuals who have no parents with upper secondary education these numbers are substantially lower: 40.8 per cent and 5 per cent respectively. This data indicates that individuals who have parents with higher levels of schooling are more likely to enter high status schools.

**Table 21.- Percentages of persons attending different types of institutions in upper secondary education by parental education**

| Type of institution                 | No parents with upper secondary | At least one parent with upper secondary | At least one parent with higher education |
|-------------------------------------|---------------------------------|--|---|
| Not enrolled                        | 19.7                            | 6.3                                      | 3.2                                       |
| Technical                           | 7.7                             | 8.3                                      | 4.8                                       |
| Technological federal schools       | 16.8                            | 20.4                                     | 15.9                                      |
| Technological state governments     | 3.7                             | 3.9                                      | 3.6                                       |
| Academic high status                | 40.8                            | 48.2                                     | 48  |
| Academic open and distance learning | 3.7                             | 2.7                                      | 2.9                                       |
| Private                             | 5.2                             | 8  | 18.6                                      |
| Others                              | 2.3                             | 1.9                                      | 2.7                                       |
| Total                               | 5,124                           | 1,355                                    | 1,364                                     |

Note: These percentages were estimated based on weighted data.

Table 22 shows a cross-tabulation between gender and type of institution. It is relevant to note that the proportion of men in technical and technological schools is slightly higher than the proportions of women whereas the distribution of female and male students in academic institutions is more alike. For instance, out of the total number of girls, 16.3 per cent attend technological federal schools and this figure for boys is higher (18.4 per cent). Besides, the proportion of females that have never been enrolled in upper secondary (15.5 per cent) is higher than the proportion of male (13.3 per cent).

**Table 22.- Percentages of persons attending different types of institutions by gender**

| Type of institution                 | Male  | Female |
|-------------------------------------|-------|--------|
| Not enrolled                        | 13.3  | 15.5   |
| Technical                           | 7.4   | 6.9    |
| Technological federal schools       | 18.4  | 16.3   |
| Technological state government      | 4.4   | 3      |
| Academic high status                | 43    | 43.4   |
| Academic open and distance learning | 3.6   | 3.4    |
| Others                              | 2.1   | 2.4    |
| Private                             | 7.4   | 8.7    |
| Total                               | 3,801 | 4,042  |

Note: These percentages were estimated based on weighted data.

Table 23, shows that out of the total number of individuals living in rural areas, 22 per cent have not been enrolled in upper secondary education and this figure is much

lower (13 per cent) for individuals living in more urbanised regions. Moreover, the proportions of individuals enrolled in academic high status schools are similar between urban and rural contexts whereas the percentages of young people enrolled in technological federal schools and technical schools are higher for those living in urban areas.

**Table 23.- Percentages of persons attending different types of institutions by urbanisation**

| Type of institution                | Urban | Rural |
|------------------------------------|-------|-------|
| Not enrolled                       | 13.2  | 22.1  |
| Technical                          | 7.6   | 4.7   |
| Technological state governments    | 3.5   | 4.6   |
| Technological federal schools      | 17.5  | 16.1  |
| Academic traditional (high status) | 43    | 44.1  |
| Academic distance learning         | 3.3   | 4.5   |
| Others                             | 2.3   | 2.4   |
| Private                            | 9.3   | 11.1  |
| Total                              | 6,695 | 1,148 |

Note: These percentages were estimated based on weighted data.

Table 24, shows educational aspirations by the type of institution attended in upper secondary education. The first aspect to note is that regardless the type of institution attended, a large majority of young people who enter upper secondary, aspire to study higher education. However, those who attend high status schools are much more likely to have higher educational aspirations. More specifically, out of the total number of those who enter academic traditional schools, 80.2 per cent aspire to attend higher education and for those attending private institutions this figure is 86 per cent. Conversely, of the total number of individuals who have never been enrolled in upper secondary, 68.5 per cent does not aspire to study higher education and this figure for those who enter technical schools is 33.5 per cent.

**Table 24.-Percentages of persons attending different types of institutions by educational aspirations**

| Type of institution                       | Do not aspire to study higher education | Aspire to study higher education | Total |
|---|---|----------------------------------|-------|
| Not enrolled in upper secondary education | 68.5                                    | 31.4                             | 952   |
| Technical                                 | 33.5                                    | 66.4                             | 707   |
| Technological federal schools             | 23.1                                    | 76.8                             | 1500  |
| Technological state governments           | 19.3                                    | 80.6                             | 279   |
| Academic traditional schools              | 19.8                                    | 80.2                             | 3325  |
| Academic distance learning                | 30.3                                    | 69.2                             | 278   |
| Private                                   | 13.5                                    | 86.4                             | 602   |
| Others                                    | 19.6                                    | 80.3                             | 200   |

Note: These percentages were estimated based on weighted data.

Furthermore, Table 25 shows that the highest mean of grades in lower secondary is for the group of individuals who enter technological schools managed by the state governments (mean= 8.4) whereas the lowest mean of grades is for the group of individuals who do not enter any institution in upper secondary education (mean=7.9).

**Table 25.- Means differences in grades in lower secondary education by the path followed after graduation**

| Type of institution             | Mean | SD  | Freq. |
|---------------------------------|------|-----|-------|
| Not enrolled in UPS             | 7.9  | .74 | 952   |
| Technical school                | 8.1  | .72 | 707   |
| Technological federal schools   | 8.2  | .74 | 1500  |
| Technological state governments | 8.4  | .79 | 279   |
| Academic traditional schools    | 8.3  | .76 | 3325  |
| Academic distance learning      | 8.3  | .74 | 278   |
| Others                          | 8.1  | .75 | 200   |
| Private                         | 8.3  | .77 | 602   |
| Total                           | 8.2  | .76 | 7843  |

#### **5.4.2 Multinomial logistic regression models to predict participation in different types of institutions (RRR)**

Multinomial logistic regressions models are estimated to assess the opportunities of gaining access to different types of institutions compared with not attending upper secondary education. The response variable comprises eight main categories and



therefore there are seven main contrasts. These categories are: (0) Not enrolled in upper secondary education (which is the base outcome); (1) private schools (2) academic high status institutions; (3) academic open and distance learning schools; (4) technological federal schools; (5) technological schools managed by the state governments, (6) technical schools and (7) other/unclassified. The instrumental variables include parental education, gender, ethnicity, type of lower secondary school attended (public or private) previous academic performance, urbanisation and educational aspirations.

Furthermore, the results of the multinomial regression model are reported in Table 26. The first model controls for social background characteristics, prior academic performance type of institution attended in lower secondary and urbanisation. The second model adds controls for aspirations. These results are expressed as relative risk ratios.

#### *Private institutions*

The results reported in Table 26, Model 1 indicate that parental education, grades, the type of school attended in lower secondary education, urbanisation and aspirations are associated to the chances of entering private upper secondary schools. The specific difference is, individuals who have at least one parent with higher education, compared to the reference category, are 10.7 times more likely of gaining a place in a private institution instead of not entering upper secondary, holding all other variables constant. Besides, there are no significant differences in the likelihood of entering a private upper secondary school (compared to not entering upper secondary education) between males and females neither between indigenous and non-indigenous persons.

Moreover, the type of lower secondary school attended makes a significant impact on the chances of entering a private school. Individuals who studied in a private lower secondary school, compared to those who studied in public schools, are 9.3 times more likely to enter a private school instead of not entering upper secondary education, given the other variables in the model are held constant. In addition, for every unit increase in grades in lower secondary education the likelihood of entering

a private institution rises 1.5 times. Besides, living in rural rather than in urban areas decreases the chances of enrolment in private schools by a factor of .19 compared to not entering upper secondary education and holding all other variables constant.

The results of Model 2 indicate that individuals who aspire to study higher education are 7.9 times more likely to enter a private upper secondary school instead of not entering upper secondary education. These results were obtained holding all other variables constant.

#### *Academic traditional schools*

The results reported in Table 26, Model 1 indicate that parental education, previous academic performance and gender significantly predict the chances of attending academic traditional institutions. More specifically, individuals who have at least one parent with higher education are almost 6 times more likely of gaining a place in an academic traditional school rather than not enrolling in upper secondary education. Besides, being female rather than male reduces the likelihood of enrolment in academic traditional schools by .75.

In addition, as grades in lower secondary increases by one unit the likelihood of enrolment in a traditional academic institution increases by 1.78 (holding all other variables constant). Moreover, it is interesting to note that no ethnic or geographical differences were identified in the probability of entering high status academic institutions compared to not entering upper secondary education.

Finally, all the explanatory variables that were statistically significant in Model 1 are statistically significant in Model 2. What is new in Model 2 is that individuals who aspire to study higher education are 6.3 times more likely to enter academic traditional schools compared to not enrolling at any upper secondary schools. These results were obtained holding all other variables constant.

#### *Academic open and distance learning schools*

The results of Model 1, Table 26 indicate that young people who have at least one parent with university studies are around 3.5 times more likely to enter an open and

distance learning school compared with not entering (holding all other variables constant). Moreover, there are no gender, ethnic neither geographical differences in the chances of entering open and distance learning education compared to not enrolling upper secondary education. Besides, as grades increase one unit, the likelihood of enrolment in this type of academic schools slightly increases to 1.2 holding all other variables constant ( $P < .000$ ).

The results of Model 2 indicate that if the young person aspires to study higher education, the chances of enrolling in an open and distance learning programme increases 4.7 times compared to not entering any upper secondary school. Besides, in Model 2 which adds control for aspirations, grades do not affect the probability of gaining a place in open and distance learning schools.

#### *Technological federal schools*

The results indicate that individuals who have at least one parent with higher education are 4.3 times more likely to enter at technological federal school rather than not entering at any institution, holding all other variables constant. Also, for one unit increase in grades in lower secondary education, young people are almost 1.7 times more likely to enrol in a technological federal school rather than not enrolling, holding all other variables constant. Besides, being female rather than male reduces the relative risk of entering at technological federal schools .68 times, holding all other variables constant.

In addition, living in a rural rather than in urban areas reduces by .76 the likelihood of gaining a place in a technological federal school versus not entering, holding all other variables constant. However, in Model 2 which adds control for aspirations, urbanisation is no a significant variable to predict the likelihood of enrolment in technological federal schools (Table 26).

#### *Technological schools managed by the state governments*

The findings shows that young people who have at least one parent with university studies are almost 4.6 times more likely to enter technological institutions managed by the state governments compared to not entering upper secondary education.

Moreover, being female rather than male reduces the probability of enrolment at this type of school by .5 and for every unit increase in grades, the likelihood of entering a technological school managed by the state governments raises by 2, holding all others variables constant.

Moreover, living in rural areas as compared to living in more urbanised regions does not affect the chances of entering a technological school managed by the state governments. On the other hand, the results of Model 2 indicate that those who aspire to study higher education are 6.5 times more likely to enter technological schools managed by the state governments as compared to not entering upper secondary education, holding all the other variables constant.

### *Technical schools*

The probability of entering a technical school versus not entering upper secondary education is around 3 times higher for those persons who have a parent with a degree ( $p < .000$ ), holding all the other variables constant. Also, women and indigenous persons are less likely than their respective references groups to enter technical schools instead of not entering upper secondary education. Moreover, living in rural rather than in urban areas reduces almost .5 times the likelihood of enrolment in a technical institution compared to not being in upper secondary education.

Besides, for every unit increase in grades the chances of enrolment in technical schools slightly raises by 1.3, holding all others variables constant. This result varies in Model 2 which adds controls for aspirations and the variable grades is not significant. Besides, those who aspire to study higher education are 3.5 times more likely to enter a technical school as compared to not entering upper secondary education, holding all the others variables constant

Finally, the logistic regression models were also estimated taking into account survey design characteristics (stratas, clusters and weights). The results indicate that the effects of clustering, stratification and weightening do not alter the coefficients but generates rather small increments in the standard errors. However, what is most important to note is that the raise in the standard errors all the cases the associated p-

values were not altered. This implies that the inferences are the same by following the two procedures.

**Table 26.- Multinomial logistic regression models to predict access to different types of institutions (RRR)**

| Variables  | Private            |                   | Academic traditional schools |                  | Academic (open and distance learning) |                  | Technological of federal schools |                  | Technological of state governments |                   | Technical        |                  |
|--|--------------------|-------------------|------------------------------|------------------|---------------------------------------|------------------|----------------------------------|------------------|------------------------------------|-------------------|------------------|------------------|
|  | Model 1            | Model 2           | Model 1                      | Model 2          | Model 1                               | Model 2          | Model 1                          | Model 2          | Model 1                            | Model 2           | Model 1          | Model 2          |
| Not enrolled in upper secondary education [Base outcome] |                    |                   |                              |                  |                                       |                  |                                  |                  |                                    |                   |                  |                  |
| <b>Parental education</b>                                |                    |                   |                              |                  |                                       |                  |                                  |                  |                                    |                   |                  |                  |
| Upper secondary  | 3.87***<br>(.80)   | 3.05***<br>(.63)  | 3.62***<br>(.55)             | 2.89***<br>(.44) | 2.08***<br>(.55)                      | 1.71***<br>(.46) | 3.65***<br>(.59)                 | 2.97***<br>(.49) | 3.31***<br>(.77)                   | 2.64**<br>(.62)   | 3.06***<br>(.56) | 2.60***<br>(.49) |
| Higher education   | 10.79***<br>(2.24) | 6.91***<br>(1.45) | 6.04***<br>(1.11)            | 3.95***<br>(.73) | 3.59***<br>(1.02)                     | 2.46***<br>(.71) | 4.43***<br>(.86)                 | 2.98***<br>(.58) | 4.67***<br>(1.21)                  | 3.04***<br>(.79)  | 2.92***<br>(.69) | 2.12***<br>(.50) |
| <b>Female</b>  | .89<br>(.11)       | .89<br>(.12)      | .78***<br>(.07)              | .78***<br>(.07)  | .76<br>(.13)                          | .76<br>(.13)     | .68***<br>(.07)                  | .68***<br>(.07)  | .50***<br>(.08)                    | .50***<br>(.08)   | .77**<br>(.09)   | .77**<br>(.09)   |
| <b>Indigenous</b>  | .79<br>(.24)       | .82<br>(.26)      | 0.92<br>(.19)                | 0.95<br>(.20)    | .82<br>(.28)                          | .82<br>(.29)     | .58*<br>(.15)                    | .61*<br>(.15)    | 1.36<br>(.47)                      | 1.42<br>(.50)     | .52*<br>(.17)    | .53*<br>(.18)    |
| <b>Type of lower-secondary</b>                           |                    |                   |                              |                  |                                       |                  |                                  |                  |                                    |                   |                  |                  |
| Private  | 9.31***<br>(2.23)  | 8.76***<br>(2.14) | .84<br>(.19)                 | .79<br>(.19)     | 4.11***<br>(1.55)                     | 3.88***<br>(1.4) | 1.19<br>(.30)                    | 1.12<br>(.28)    | 1.44<br>(.48)                      | 1.35<br>(.46)     | 1.75**<br>(.49)  | 1.66*<br>(.46)   |
| <b>Grades</b>  | 1.54***<br>(.13)   | 1.20***<br>(.11)  | 1.78***<br>(.11)             | 1.41***<br>(.09) | 1.22*<br>(.14)                        | 1.00<br>(.11)    | 1.70***<br>(.11)                 | 1.37***<br>(.10) | 2.07***<br>(.25)                   | 1.63<br>(.20)     | 1.30***<br>(.10) | 1.10<br>(.09)    |
| <b>Urbanisation</b>                                      |                    |                   |                              |                  |                                       |                  |                                  |                  |                                    |                   |                  |                  |
| Rural areas  | .19***<br>(.06)    | .22***<br>(.07)   | .87*<br>(.10)                | .98<br>(.11)     | 1.05<br>(.21)                         | 1.16<br>(.23)    | 0.76**<br>(.10)                  | 0.84<br>(.11)    | 1.06<br>(.24)                      | 1.19<br>(.27)     | .54***<br>(.09)  | .59***<br>(.10)  |
| <b>Aspire H.E</b>  |                    | 7.90***<br>(1.28) |                              | 6.37***<br>(.64) |                                       | 4.73***<br>(.86) |                                  | 5.34***<br>(.60) |                                    | 6.58***<br>(1.27) |                  | 3.52***<br>(.47) |

Note: Model 1 no controls for aspirations and Model 2 controls for aspirations. Relative risk ratios are reported and linearized standard errors appear in parentheses.

Legend: \* p<.1; \*\* p<.05; \*\*\* p<.01

## 5.5 Summary and discussion

In this chapter, the probabilities of attending upper secondary education using binomial logistic regression models were explored. The results revealed that parental education, previous academic performance, gender, type of lower secondary school attended (public/private) urbanisation and aspirations were significant predictors of the probabilities of entering the upper secondary level for the age group 16-25 as compared to not enrolling at all.

Nevertheless, as Breen and Jonsson (2005) suggest, the binomial logistic model of educational transitions assumes that educational choices are dual (e.g. enrolment or not enrolment) which is not entirely valid for all contexts. The case of Mexico illustrates that individuals who have graduated from lower secondary have several educational pathways available to choose yet not all are accessible for them. In order to take into account the institutional structure of upper secondary education, the analysis was extended to address the question of what are the factors associated with the probabilities of entering different types of institutions compared with not attending upper secondary education. The educational options were classified in six main categories which are: academic traditional schools, academic open and distance learning schools, technological federal schools, technological schools of the state governments, technical schools and private institutions.

The results of the multinomial regression analysis indicate that parental education strongly predicts the chances of entering academic traditional schools and private schools rather than not entering. Specifically, individuals who have parents with higher levels of education are more likely to attend more prestigious institutions at the upper secondary level. These findings support some statements of the effectively maintained inequality approach developed by Lucas (2001). Lucas' theory points out that even though social inequalities in access at a given level of education are reduced, social inequalities might be preserved in the kind of education attained because individuals from elite groups use their advantages to achieve qualitatively

better education. In Mexico, social differentials in access at upper secondary education co-exist with social differentials in entrance at high quality schools.

Similarly, previous academic performance is positively associated to the chances of gaining a place in academic general schools and technological federal schools. However, the effect of academic performance seems to be less strong for attending certain public institutions such as open and distance learning schools and technical schools. These results might be explained by the fact that these types of schools are less academically selective. This type of educational option deserves further investigation because the Mexican government has announced that further expansion of upper secondary education will include increasing the offer of open and distance learning programmes (SEP, 2013).

Another interesting finding is that girls have fewer chances than boys of attending upper secondary education compared to not enter at this educational level. However, it was found that gender effects were significant for the age group 16-25 but are not significant for the age group 16-18 which suggests that there are better conditions in access at upper secondary education for the youngest generations who participated in the survey. In addition, the findings of the multinomial regression analysis show that females are less likely than males to attend all types of vocational education (technological federal schools, technological schools managed by the states governments and technical institutions). In light of these findings it can be suggested that girls do not prefer attending technical and technological upper secondary schools.

While the results of the binomial regression models show that ethnicity is not a significant variable to predict access at upper secondary education for individuals aged 16-25 and 16-18, the findings of the multinomial logistic regression analysis show that being indigenous makes an impact on the chances of entering at some types of vocational schools. More specifically, the probability of attending technical schools and technological federal institutions is lower for indigenous than for not indigenous. It seems possible that these results are due to the fact that technological and technical upper secondary schools are still not offered in regions with certain



concentration of indigenous populations. For Schmelkes (2003), indigenous' demand for upper secondary education in Mexico increased after the nineties, as a consequence of the expansion of lower secondary education: however, Schmelkes points out that the offer of upper secondary education for indigenous locations is still very low.

Another relevant result is that no differences in access at academic schools between rural and urban contexts were found. This might be explained by the fact that academic schools located in urban centres provide transportation services for young people who live in more remote communities. Similar to indigenous' situation, individuals who live in rural areas are significantly less likely to enter technical and private schools than individuals who inhabit more urbanized regions. These findings suggest that technical and private schools are mainly offered in urbanised areas where more industrial centres are placed.

Regarding the influence of aspirations, the results of this dissertation illustrate that individuals who aspire to study a degree are more likely to attend at any type of upper secondary institution rather than not attending. The results also seem to indicate that aspirations for university education mediate the effect of location in the chances of entering technological federal schools. In other words, aspirations somewhat enable persons for entering any type of institution even though persons face other kinds of disadvantages such as living in more remote locations. Therefore, the present findings confirm that aspirations reinforce the chances of pursuing a future that persons have reasons to value (Hart, 2013).

So far this chapter has focused on examining participation in upper secondary education. The following section will discuss issues of completion and dropout from upper secondary education.

## **Chapter 6 Second school transition: completion of upper secondary education**

### **6.1 Introduction**

In Mexico, a large proportion of individuals leave education without graduating from upper secondary education even though completion of this educational level became compulsory after 2011. By way of illustration, for the school year 2012-2013, 14.3 per cent of the total number of individuals who entered upper secondary education dropped out from school (INEE, 2014). The majority of dropouts leave upper secondary schools during the first school year and men have higher dropout rates than women. Moreover, the vocational education and training (VET) system of upper secondary education, which comprises technological and technical professional baccalaureates, faces higher dropout rates than general academic pathways. (INEE, 2014).

The main purpose of this chapter is to examine what the main influences are on the probabilities of completing upper secondary education instead of dropping out. Another important aim of this section is to examine the explanatory power of three research hypotheses that were formulated drawing on Sen's capability approach, Bourdieu's theory of sociocultural reproduction and Breen and Goldthorpe's rational action theory. These hypotheses were discussed at the end of chapter two.

### **6.2 Prior studies on secondary school dropout and completion**

Previous studies carried out worldwide have reported that secondary school dropout and completion are usually influenced by more than one factor. For instance, the international comparative study conducted by Lamb and Markussen (2011) about the predictors of school dropout and completion in 13 different countries (Australia, Canada, England, Finland, France, Germany, Iceland, Norway, Poland, Scotland, Spain, Switzerland and USA) highlights the importance of family background (socioeconomic status, family structure and parental education); demographic factors (gender, race, and ethnicity); individual characteristics (disability, health, self-

esteem); experiences in school (academic achievement, attitudes towards school, grade repetition or retention); school context and community and economic settings and school context.

Other studies have examined the influence of school factors on dropout rates. For instance, Rumberger and Thomas' (2000) investigation reveals that the variation of dropout rates of a sample of High Schools in the United States could be attributed to differences in the background characteristics of the students but also to several school factors such as school resources, school structure and school processes. In another study, Rumberger (1995) found that dropout from high schools is partially explained by several structural features of the schools and by school climate.

Moreover, in an investigation into the influence of grade retention on high school dropout rates, Roderick's research (1994) found that repeating a school year is an important predictor of the levels of dropout from high schools in Massachusetts.

Regarding studies on Latin America, Bassi, *et al.* (2014) explore trends over time on graduation rates and dropout rates in 18 Latin American countries (Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, El Salvador, Uruguay and Venezuela). They found that secondary school graduation rates increased from 1990 to 2010 whereas dropout rates decreased during the same period. Moreover, Bassi and collaborators note that the phase of the highest chances of school dropout moved from the transition of primary to secondary to a later stage in secondary schooling which indicates that students remain for longer periods in schooling.

In Mexico, much of the analysis of the dropout phenomenon has relied on census and household surveys such as the Conteo de Población y Vivienda and Encuesta Nacional de Ocupación y Empleo. Census such as the former have shown that students drop out from upper secondary education mainly because they dislike school due to that it is not relevant for their lives and interests (Székely, 2010). Although these surveys have offered important insights to study the dropout phenomenon at the system level, they are limited to identify the broad range of influences on school

dropout. More recently, an investigation carried out by the Ministry of Education (SEP-SEMS, 2012) uses the School dropouts' survey, 2011 to estimate the probability of dropping out from upper secondary schools. The main findings suggest that dropping out from school is associated with several factors such as family factors, socioeconomic circumstances and educational factors.

Other research has been carried out for certain federal states of Mexico. For instance, the investigation conducted by Blanco (2014) explores the interruption of school attendance in the City of Mexico at different educational levels using the Survey on educational and occupational trajectories in Mexico City, 2010. Blanco found that factors such as social origin, gender, institutions and life events influence the interruption of school. In another study, Abril, *et al.* (2008) explores the causes of dropping out from high schools in Sonora. The authors interviewed 147 young people aged 15 to 22 who left their studies between 2003 and 2004. They found that the most important reasons for leaving school were socioeconomic circumstances, poor academic achievement, school failure and lack of interest for studies.

Overall, most of the literature on school dropout highlights that this issue is usually influenced for several variables. However, less attention has been paid to examine the influence of agency-related dimensions and the role of different sources of institutional differentiation on school dropout and completion using national survey data as it is intended in this research. Most importantly, little efforts have been made to explain the dropout phenomenon drawing on an interdisciplinary theoretical perspective.

### **6.3 Research question and hypotheses**

The research question that will be answered in this chapter examines the extent to which sociocultural and ascriptive factors, economic resources the type of institution attended in upper secondary education, agency and capability dimensions and educational experiences are associated to persons' capacity to complete upper secondary education instead of dropping out. Moreover, three hypotheses will be tested in this section. These hypotheses were formulated drawing on different disciplines (political philosophy and sociology of education). The strategy that has

been adopted to examine the explanatory power of these hypotheses is to test the type and strength of the association between key explanatory factors that represent these theories and the outcome variable. This strategy is further described in the next lines.

The first research hypothesis that will be tested in this chapter comes from the capability approach and it states that:

*Individuals' capacity to achieve higher educational transitions in Mexico is influenced by human agency dimensions such as the degree of freedom/power to choose over educational-related aspects. If individuals have more freedom/power to make educational decisions, such as selecting the type of institution to study, they are more likely to attain higher levels of education.*

In order to test this hypothesis, the extent to which the explanatory variable called “degree of freedom/power to choose school” is associated with the probabilities of completing upper secondary education will be explored. More specifically, if young people have certain degree of freedom to participate in the decision making processes on which school to attend and if this positively impacts the likelihood of graduating from upper secondary education, then this hypothesis will be accepted. Conversely, if young people were assigned to the school by institutional authorities or if the selection of schools was made by their parents, and if these two situations have a positive association with the chances of finishing upper secondary education, then the research hypothesis from the capability perspective will not be accepted.

The second research hypothesis which explores the explanatory power of some assumptions of Bourdieu's sociocultural reproduction theory is specified as follows:

*Individual's decisions to attain higher school transitions in Mexico are influenced by structural factors such as cultural capital and socioeconomic resources. Persons from more advantageous social origins are more likely to participate in upper secondary and higher education because their culturally and economically wealthier conditions allow them to stay longer in schools.*

In order to account for persons' cultural capital the effect of the variable parental education will be examined and in order to account for persons' socioeconomic resources it will be used an index of home possessions. Individuals who belong to more advantageous origins are those who have parents with higher levels of schooling and those who have more material resources at home. The hypothesis from Bourdieu's theory of sociocultural reproduction will be confirmed if higher educational qualifications and higher levels of material resources are positively associated with the likelihood of completing upper secondary education.

The third research hypothesis agrees with some insights of the rational action theory and it is formulated as follows:

*Individuals make rational calculations regarding their opportunities of success in reaching higher educational transitions in the Mexican educational system in a way that they weigh the costs and benefits associated to each decision, take into account their academic performance and try to avoid risk events which may hamper their chances of moving ahead in the educational career. To be specific, if persons perceive economic benefits -present and future- for attending schools; if they achieve higher levels of academic performance than their counterparts and if they do not face risk life events that may hinder their educational trajectories, then they are more likely to reach higher educational levels.*

This hypothesis will be tested using three explanatory variables: access to scholarship, prior academic performance and an index of risk events.

It is worth noticing that this hypothesis agrees with three assumptions of the rational action theory. First, it assumes that the probabilities of succeeding in the educational system are influenced by academic performance. Second, it assumes that individuals are risk adverse. Third, this hypothesis considers that individuals are able to make rational decisions rather than making choices exclusively under the influence of social and cultural norms, as classical social stratification theories tend to overemphasize.

However, this hypothesis differs from the rational action theory as regards to the notion of rationality. More specifically, it does not assume that individuals' decisions are merely guided by the purpose of maintaining the social class of origin and/or by achieving social mobility. Individuals' rationality can be manifested by pursuing human development and this might include but is not restricted to the goal of moving ahead in the social structure.

## **6.4 Methodological considerations**

In order to answer the second research question of this thesis and to test the previous three research hypotheses, a set of binomial logistic regression models are estimated. For all the models, the dependent variable is binary, coded 1 if the person completed upper secondary education and coded 0 if the person dropped out. The explanatory variables included in the statistical models are parental education, index of home possessions, age, gender, ethnicity, type of institution, degree of freedom/power to choose school, access to scholarship, grades in lower secondary, school disengagement and risk events.

As it was discussed in the methodological chapter, the sample of the School dropouts' survey is representative of the population of dropouts in Mexico in 2011. This is a valuable achievement because gathering information about dropouts is often a complex task. For Rumberger (2011), is problematic calculating annual estimations of high school dropouts and graduates due to the challenges involved in following students' trajectories throughout the years.

The sample of respondents who participate in the SDS is from 14 to 25 years old at the moment of data collection. For the purposes of this chapter the sample is restricted to respondents aged 16-25 for two main reasons: first, the probability that individuals have participated in upper secondary school increases after the age of 16; second, international statistics of dropout and completion of upper secondary education are usually calculated for individuals aged 16 and older. Therefore, by focusing on the age group 16-25 it appears to be more feasible to make comparisons between the results for Mexico and the results for other countries.

In the following sections, the empirical results that will give an answer to the second research question of this thesis and that will test the validity of three research hypotheses, are presented and discussed. First descriptive findings are displayed and next the results of the statistical modelling.

## 6.5 Empirical results

### 6.5.1 Descriptive statistics

Descriptive statistics display variations between the groups of dropouts and graduates from upper secondary education according to several dimensions. More specifically, they show the proportions of graduates and dropouts by parental education, gender, ethnicity, age, type of institution, degree of freedom to choose school and access to scholarship. Besides, the mean values of the variables grades, home possessions, school disengagement and risk events are compared between the groups of graduates and dropouts.

Table 27 shows completion and dropout rates by the highest level of education of parents. The first thing to note is that out of the total number of respondents who have at least one parent with higher education, 81 per cent complete upper secondary education and 18.8 per cent dropout. These figures for individuals who have no parents with upper secondary education are 47 and 52 per cent respectively.

**Table 27.- Completion and dropout rates by parental education**

| Parental education | No parents with upper secondary | At least one parent with upper secondary education | At least one parent with higher education |
|--------------------|---------------------------------|--|---|
| Dropouts           | 47.3                            | 37.4   | 18.8                                      |
| Graduates          | 52.7                            | 62.6   | 81.2                                      |
| Total              | 3,002                           | 752  | 810                                       |

Note: These percentages were estimated based on weighted data.

Table 28 illustrates differences in upper secondary education completion and dropout according to gender. It shows that of the total number of female respondents 62.6 complete upper secondary education and this figure is 57.4 per cent for the group of male respondents.



**Table 28.- Completion and dropout rates by gender**

| Gender    | Male  | Female |
|-----------|-------|--------|
| Dropouts  | 42.5  | 37.3   |
| Graduates | 57.4  | 62.6   |
| Total     | 2,195 | 2,369  |

Note: these percentages were estimated based on weighted data.

Table 29 shows completion and dropout proportions according to respondents' age. Out of the total number of individuals being 16 years old, 15 per cent are graduates; out of the total number of individuals aged 17 years old 31 per cent are graduates and for individuals aged 18 and 19 and older this figure is around 64 per cent. Overall, these figures suggest that it is more likely that young people have completed upper secondary education after the age of 18. This finding coincides to that noticed by studies conducted in the international context which indicate that in most education system, the modal age at which young people complete upper secondary programmes is between 17 and 20 years of age (Lamb and Markussen, 2011).

Nevertheless, what is probably more important to note is that the proportion of dropouts is significantly higher (85%) if individuals are 16 years old. This seems to be the age of more risk for withdrawing from school.

**Table 29.- Completion and dropout rates by age**

| Age       | 16  | 17    | 18   | 19 and older |
|-----------|-----|-------|------|--------------|
| Dropouts  | 85  | 68.79 | 35.6 | 35.2         |
| Graduates | 15  | 31.21 | 64.4 | 64.7         |
| Total     | 207 | 402   | 680  | 3275         |

Note: These percentages were estimated based on weighted data.

Table 30 shows that out of the total number of indigenous 40 per cent are dropouts and 60 per cent are graduates from upper secondary education. These figures for non-indigenous people are almost the same: 39.7 and 60.3 per cent respectively. So, there is no difference between indigenous and non-indigenous students on upper secondary school completion.

**Table 30.- Completion and dropout rates by ethnicity**

| Ethnicity | Non-indigenous | Indigenous |
|-----------|----------------|------------|
| Dropouts  | 39.7           | 40         |
| Graduates | 60.3           | 60         |
| Total     | 4351           | 213        |

Note: These percentages were estimated based on weighted data.

Table 31 illustrates completion and dropout rates according to the type of institution attended in upper secondary education. The first aspect to note is that the proportion of dropouts is higher than the proportion of graduates if individuals studied in open and distance learning schools and technical schools. Conversely, the proportions of graduates are significantly higher than the proportion of dropouts for those individuals who studied in private schools, technological schools managed by the state governments and academic traditional schools. The percentages of graduates from these schools are 71%, 65% and 63% respectively.

**Table 31.- Completion and dropout rates by the type of institution attended in upper secondary education**

| Type of school                      | Dropouts | Graduates | Total |
|-------------------------------------|----------|-----------|-------|
| Private                             | 28.7     | 71.3      | 406   |
| Academic traditional (high status)  | 36.8     | 63.2      | 2176  |
| Academic open and distance learning | 56.3     | 43.7      | 182   |
| Technological federal schools       | 44       | 56        | 1015  |
| Technological of state governments  | 35       | 65        | 183   |
| Technical                           | 53       | 47        | 479   |
| Other                               | 40.4     | 59.6      | 123   |

Note: These percentages were estimated based on weighted data.

Furthermore, the capability approach points out the importance of freedom to choose as an aspect of individual's well-being. Regarding the freedom to make educational decisions such as school choice, Hart argues: "A capability perspective of well-being freedom in terms of school or college choice would be able to take account of the freedom an individual has to choose between different institutions as well as the individual's satisfaction with their chosen institution (the latter being a current focus of institutional evaluation)" (Hart, 2013: Kindle Locations 2703-2704).

This study investigates the proportion of dropouts and graduates from upper secondary education according to the degree of freedom to choose upper secondary school. The results reported in Table 32 show that out of the total number of individuals who mentioned that they were able to participate in school choice, 62.3 per cent are graduates and 37.7 per cent are dropouts. Whereas, out of the total number of persons who mentioned that they did not choose the school but were allocated to it by the institution, 61 per cent are dropouts and 38.9 graduates from upper secondary schooling.

**Table 32.- Completion and dropout rates by freedom/power to choose school**

|           | Institutional allocation | Parental choice | Individuals' choice |
|-----------|--------------------------|-----------------|---------------------|
| Dropouts  | 61.06                    | 52.22           | 37.77               |
| Graduates | 38.94                    | 44.78           | 62.23               |
| Total     | 236                      | 198             | 4,130               |

Note: These percentages were estimated based on weighted data.

Table 33 illustrates that of the group of individuals who have access to scholarship; 74 per cent finish upper secondary education and 26 per cent dropout from this educational level. Whereas of the group of persons who declared not having such financial support, 43.2 per cent dropout from school and 53.8 per cent complete this educational level.

**Table 33.- Completion and dropout rates by access to scholarships**

| Access to scholarships | No    | Yes |
|------------------------|-------|-----|
| Dropouts               | 43.2  | 26  |
| Graduates              | 53.8  | 74  |
| Total                  | 3,741 | 823 |

Note: These percentages were estimated based on weighted data.

Table 34 shows some summary statistics (means, standard deviations and t-tests) for continuous variables such as grades in lower secondary, index of home possessions, index of school disengagement and index of risk events. The results indicate that the variable grades ranges from six to 10. The mean of grades for the group of dropouts is 7.9 and this figure is 8.4 for the group of graduates from upper secondary education. The t-test shows that the mean difference is statistically significant (t-

statistic= -22.9 and the associated p-value is 0.00); in other words, the mean difference between the grades of these two populations is different from zero.

Besides, the index of home possessions ranges from zero to fifteen and the mean is 10.4 with a standard deviation of 3.07. The mean of the index of home possessions is 9.7 for dropouts and 11.15 for graduates from upper secondary education. The mean difference of these two populations is different from zero (t-statistic=-16.2 and p-value=0.00). The variable school disengagement ranges from 0 to 12. The mean difference of the value of the index of school disengagement for dropouts (1.83) and graduates (.96) is statistically significant. Similarly, the mean difference of the index of risk events for dropouts (.74) and graduates (.42) is statistically significant (see Table 34).

**Table 34.- Summary statistics for continuous variables**

| Variable                      | Statistics |       |           |     |     | Comparison of means (t-test) |           |        |         |
|-------------------------------|------------|-------|-----------|-----|-----|------------------------------|-----------|--------|---------|
|                               | Obs.       | Mean  | Std. Dev. | Min | Max | Dropouts                     | Graduates | t-stat | p-value |
| Grades in lower secondary     | 4564       | 8.23  | 0.75      | 6   | 10  | 7.98                         | 8.47      | -23.02 | 0.00    |
| Index of home possessions     | 4564       | 10.46 | 3.07      | 0   | 15  | 9.71                         | 11.15     | -16.22 | 0.00    |
| Index of school disengagement | 4564       | 1.38  | 1.57      | 0   | 12  | 1.83                         | 0.96      | 19.44  | 0.00    |
| Index of risk events          | 4564       | 0.58  | 0.88      | 0   | 7   | 0.74                         | 0.42      | 12.45  | 0.00    |

Note: for more detailed explanations on how these indexes were measured see the methodological chapter (chapter four).

Descriptive statistics offer some preliminary insights to characterize the groups of dropouts and graduates from upper secondary education. The next section moves on to discuss the results of the logistic regression models.

### **6.5.2 Binomial logistic regression models to predict completion of upper secondary education (AMEs)**

The results obtained from the binomial logistic regression analysis for the second school transition are shown in Table 35. The set of statistical models examine what factors are associated to the probability of completing upper secondary education

instead of dropping out and they also seek to test the validity of three research hypotheses that were formulated drawing on Sen's capability approach, Bourdieu's theory of sociocultural reproduction and Breen and Goldthorpe's rational action theory.

As it was stated earlier in this chapter, the coefficients are expressed in terms of average marginal effects in order to make comparisons of the regression coefficients across models. Thus, in the first model the variable parental education is incorporated and in the second model all the other sociodemographic characteristics are included. Next, institutional variables enter in the logistic regression analysis. The fourth model adds dispositional and agency related factors and the last model incorporates variables on individual's educational experiences (see Table 35).

The results of Model 1 which examines the net effect of parental education on the probability of concluding upper secondary education indicate that for those individuals who have a parent with university studies the probability of finishing upper secondary education is 28.5 per cent higher than the probability of having a parent with lower secondary education as a maximum level of schooling. For those who have at least one parent with upper secondary education, this figure is 9.9 per cent greater than the probability of the reference group.

Model 2 adds the effect of all the other socio-demographic variables such as age, gender, and ethnicity and the index of home possessions. The results indicate that for one unit change in the index of home possessions, the probability of completing upper secondary increases 2.6 per cent. Besides, the probability of finishing this educational level for individuals aged 17, 18 and 19-25 are 16.3 per cent, 47 per cent and 47.7 per cent respectively as compared with the reference group. In addition, for females the probability of finishing upper secondary education is 5.8 per cent higher as compared with males and the probability of completing this educational level is 8 per cent higher for indigenous as compared with non-indigenous. These results were obtained holding all other variables at their average values.

Once sociocultural and economic resources and ascriptive factors are accounted for, institutional variables are incorporated in the statistical modelling. Model 3 shows

that the probability of completing upper secondary is 16.1 per cent less for young people who study at academic open and distance learning institutions as compared with having studied in academic traditional schools. Similarly, the probability of finishing upper secondary is 10 per cent less if the person studied in technical school as compared with having attended at academic traditional school (high status). Besides, an individual who studied in technological federal schools will on average have a probability of completing upper secondary education of 4 per cent lower than an individual who studied in a traditional academic school.

Model 4 explores the effect of freedom to choose school and the index of school disengagement. As it is showed in Table 35, the probability of completing upper secondary is 16.4 per cent higher if individuals choose their school as compared of being allocated to the school by institutional authorities. Moreover, the probability of completing upper secondary education is 6.7 per cent lower for one unit change in the index of school disengagement.

Model 5, controls for educational experiences such as grades in lower secondary education, access to scholarship and an index of risk events. The results indicate that the change in the probability of completing upper secondary is 11.5 per cent higher for one unit change in grades. Moreover, if individuals have access to scholarships, the probability of concluding upper secondary education is 17.2 per cent as compared with not having such social benefit. Besides, the probability of completing upper secondary is reduced by 5.9 per cent for one unit change in the index of risk events.

Furthermore, it is interesting to note that the influence of parental education changes after introducing other explanatory variables such as the type of institution attended in upper secondary education, freedom to choose school and educational experiences. For instance, in model 1, the probability of completing school for those individuals who have a parent with university education is 28.5 per cent higher than for those in the reference group, whereas in the last model which introduces the effect of all the other explanatory variables (Table 35, six column), this figure decreases to 16 per cent. Similarly, the influence of ethnicity changes after incorporating variables about educational experiences (grades, access to scholarship

and risk events during studies) in the logistic regression analysis. Thus, in models 2 to 4, being indigenous increases the probability of graduating from school but after controlling for academic performance and access to scholarship there are not differences statistically significant between indigenous and non-indigenous students. Finally, these results suggest that, apart from age, the strongest predictor of school completion is having access to scholarship.

**Table 35.- Binomial logistic regression models to predict completion of upper secondary education instead of dropping out (AMEs)**

| Variable   | Model 1          | Model 2           | Model 3           | Model 4           | Model 5           |
|--|------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Parental education (Ref. lower secondary)</b>       |                  |                   |                   |                   |                   |
| Upper secondary  | .099***<br>(.02) | .050**<br>(.02)   | .047**<br>(.02)   | .054**<br>(.02)   | .058***<br>(.01)  |
| Higher education                                       | .285***<br>(.01) | .204***<br>(.02)  | .195***<br>(.02)  | .179***<br>(.02)  | .160***<br>(.02)  |
| <b>Index of home possessions</b>                       |                  | .026***<br>(.002) | .026***<br>(.002) | .023***<br>(.002) | .021***<br>(.002) |
| <b>Age (Ref. 16)</b>                                   |                  |                   |                   |                   |                   |
| 17   |                  | .163***<br>(.04)  | .166***<br>(.04)  | .146***<br>(.04)  | .125**<br>(.04)   |
| 18   |                  | .470***<br>(.03)  | .467***<br>(.03)  | .427***<br>(.04)  | .378***<br>(.04)  |
| 19 and older   |                  | .477***<br>(.03)  | .473***<br>(.03)  | .428***<br>(.03)  | .400***<br>(.03)  |
| <b>Female (Ref. male)</b>                              |                  | .058***<br>(.01)  | .057***<br>(.01)  | .041***<br>(.01)  | .032**<br>(.01)   |
| <b>Indigenous</b>                                      |                  | .080**<br>(.03)   | .074**<br>(.03)   | .064*<br>(.03)    | .031<br>(.03)     |
| <b>Type of institution (Ref. Academic traditional)</b> |                  |                   |                   |                   |                   |
| Private schools  |                  |                   | -.007<br>(.02)    | -.012<br>(.02)    | -.005<br>(.02)    |
| Academic open and distance learning schools            |                  |                   | -.161***<br>(.05) | -.143***<br>(.04) | -.118***<br>(.04) |
| Technological federal schools                          |                  |                   | -.04**<br>(.02)   | -.05***<br>(.01)  | -.05***<br>(.01)  |
| Technological state governments                        |                  |                   | .030<br>(.03)     | .016<br>(.03)     | -.019<br>(.03)    |
| Technical schools                                      |                  |                   | -.010***<br>(.02) | -.115***<br>(.02) | -.092***<br>(.02) |
| Other/Unclassified                                     |                  |                   | -.004<br>(.04)    | -.029<br>(.04)    | -.014<br>(.04)    |

|   |       |       |       |                    |                    |
|---|-------|-------|-------|--------------------|--------------------|
| <b>Freedom to choose school (Ref. Institution's decision)</b> |       |       |       |                    |                    |
| Parents' choice   |       |       |       | .062<br>(.04)      | .032<br>(.04)      |
| Individuals' choice   |       |       |       | .164***<br>(.03)   | .128***<br>(.03)   |
| <b>School disengagement</b>                                   |       |       |       | -.067***<br>(.005) | -.047***<br>(.005) |
| <b>Grades in lower secondary</b>                              |       |       |       |                    | .115***<br>(.009)  |
| <b>Access to scholarships</b>                                 |       |       |       |                    | .172***<br>(.01)   |
| <b>Index of risk events</b>                                   |       |       |       |                    | -.059***<br>(.009) |
| <b>Number of Obs.</b>   | 4,564 | 4,564 | 4,564 | 4,564              | 4,564              |
| <b>R2</b>   | .042  | .113  | .120  | .170               | .236               |

Note: My own elaboration from the School dropouts' survey for Mexico, 2011. Data weighted using probability weights. Average marginal effects are reported and linearized standard errors are shown in parenthesis. Legend: \*  $p < .1$ ; \*\*  $p < .05$ ; \*\*\*  $p < .01$

Moreover, in Table 35 shows the value of the pseudo r-squared in order to examine the extent to which the predictive power of the regression analysis improves by successively including additional explanatory variables.

As we can see from Table 35, the value of the pseudo r-squared increases as the analysis moves from Model 1 to Model 5. More specifically, in Model 1, the variable parental education explains approximately 4 per cent of school completion. In Model 2, parental education and all the other the variables to account for social background characteristics explain 11 per cent of the results. Adding the variable type of institution slightly increases the value of the pseudo r-squared to 12 per cent.

Moreover, by incorporating variables that represents the capability approach such as freedom to choose school and school disengagement, the value of the pseudo r-squared raises to 17 per cent in Model 4. Finally, after introducing the variables to account for individual's educational experiences, the value of the pseudo r-square increases to 23 per cent. Overall, these results suggest that the predictive power of the model improves after taking into account several explanatory variables beyond ascriptive factors.



### ***Multicollinearity tests***

As it was mentioned in the methodological chapter, multicollinearity occurs when one or more predictors variables, incorporated in a regression analysis, are correlated (Gujarati, 2004). Table 36 displays the results of the multicollinearity test. It shows the variance inflation factor (VIF), the mean of the VIF for all the variables and the levels of tolerance associated with each explanatory variable. The results of the multicollinearity test suggest that there are not issues of large correlations among the predictors which deserve further consideration. Specifically, for all the variables, the variance inflation factor is substantially lower than 10, the mean value of the VIF is very close to 1 (1.10) and the tolerance values of all the predictors are substantially larger than .10.

**Table 36.- Multicollinearity test**

| Variables           | VIF  | SQRT VIF | Tolerance | R-Squared |
|---------------------|------|----------|-----------|-----------|
| Parental education  | 1.22 | 1.10     | 0.8220    | 0.1780    |
| Home possessions    | 1.28 | 1.13     | 0.7805    | 0.2195    |
| Age                 | 1.02 | 1.01     | 0.9823    | 0.0177    |
| Gender              | 1.06 | 1.03     | 0.9462    | 0.0538    |
| Indigenous          | 1.04 | 1.02     | 0.9631    | 0.0369    |
| Type of institution | 1.02 | 1.01     | 0.9842    | 0.0158    |
| Grades              | 1.11 | 1.05     | 0.9008    | 0.0992    |
| Scholarship         | 1.05 | 1.02     | 0.9530    | 0.0470    |
| Freedom to choose   | 1.02 | 1.01     | 0.9817    | 0.0183    |
| Disengagement       | 1.16 | 1.08     | 0.8603    | 0.1397    |
| Risk events         | 1.14 | 1.07     | 0.8760    | 0.1240    |
| Mean VIF            | 1.10 |          |           |           |

## **6.6 Summary and discussion**

This chapter set out with the aim of investigating what are the main factors influencing the probabilities of completing upper secondary education as compared to dropping out. Overall, the results of this study indicate that the chances of completing upper secondary are associated with sociocultural and economic resources and ascriptive characteristics (parental education, gender, ethnicity, age and resources at home), institutional factors (type of institution attended in upper secondary education), individuals' preferences towards schooling (disengagement

from school); human agency dimension (freedom to choose school), and with experiences in school (grades, access to scholarship and risk events).

More specifically, the findings show that individuals' social background is an important predictor of educational attainment. Having parents with higher levels of schooling and having more material resources at home have a strong positive impact on the chances of completing upper secondary education instead of withdrawal. Moreover, the explanatory variables used to measure individuals' social background (parental education and the index of home possessions) are key dimensions to account for Bourdieu's theory of sociocultural reproduction. Therefore, the evidence of this study confirms the research hypothesis that states: *Individuals' decisions to attain higher school transitions in Mexico are influenced by structural factors such as cultural capital and socioeconomic resources. People from more advantageous backgrounds are more likely to participate in upper secondary and higher education because their wealthier living conditions allow them to stay longer in schools.*

Besides, the probabilities of completing upper secondary were lower for male students than for female students. In addition, indigenous are more likely of making this school transition than non-indigenous: however, after taking into account the effect of grades, access to scholarship and risk events; there is no difference statistically significant between indigenous and non-indigenous students. It can thus be suggested that achieving good levels of academic performance and having financial assistance during studies is favourable for mobility across educational transitions for all students.

Moreover, it is worth stressing that the chances of completing upper secondary education are influenced not only by students' background characteristics but also by the type of institution attended. More specifically, individuals who attend more advantageous institutions such as academic traditional schools and private schools were more likely to complete upper secondary education rather than withdrawal whereas persons who studied in less selective institutions (technical and open and distance learning schools) were less likely to complete upper secondary education than those who attended academically more selective institutions. This finding

corroborates and extends data from INEE (2014) which point out that technical upper secondary schools have consistently displayed higher dropout rates than academic schools.

Furthermore, no statistical difference was found on the chances of completing upper secondary between individuals who attended technological schools funded by the state governments (Cecyte and Cecyt) and those who studied in academic traditional schools. Conversely, students who attended technological federal schools were less likely to graduate from upper secondary than those who attended academic traditional institutions. This finding suggests that Cecyte and Cecyt are performing better in terms of promoting upward educational mobility than other types of vocational institutions. Further studies on the school characteristics and practices of this type of institutions are therefore recommended.

Another important result is that variables related to the capability approach such as individuals' (dis)engagement with school and freedom to choose school, matter for school completion. The weaker the student's engagement with school the more likely he/she is of dropping out. It is worth emphasizing that the main variables used to measure school disengagement include attributing little relevance to education, preferring to enter to the labour market rather than studying, having no much interest on studies, disapproving some disciplinary regulations of school and pursuing transferring studies to a different type of institution. Perhaps these results are partially explained in terms of youths not valuing the curriculum offered in upper secondary education due to the fact that it is not relevant for the lives they have reason to value.

Another interesting finding of this thesis is that an individual's degree of freedom to choose school is associated with higher probabilities of school completion. For those persons who consider that the selection of school was made by their parents or that they did not choose school but were placed in schools by institutional authorities, the probabilities of completing upper secondary education were lower than if the person had certain freedom to choose which school to attend. This evidence confirms the research hypothesis from the capability approach which states that: *Individuals'*

*capacity to achieve higher educational transitions in Mexico is influenced by human agency dimensions such as the degree of freedom/power to choose over educational-related aspects. If individuals have more freedom/power to make educational decisions, such as selecting the type of institution to attend, they are more likely to attain higher educational transitions.*

Overall, having access to scholarships in upper secondary education is one of the strongest predictor of the chances of attaining this school transition. Individuals who received financial support were more likely to remain and complete schooling than those individuals who did not receive monetary aid. The range of scholarships that was available for students who participated in the survey included: scholarships offered by the Ministry of Education, scholarships offered by the Human Development Programme Opportunities (HDPO) (which is now known as Programme Prospera), scholarships offered by the federal government and the federal states and scholarships provided by universities.

It is worth noticing that the scholarships offered by the Human Development Programme Opportunities (Prospera) help students to continue in education by addressing their financial constraints. As it was commented earlier in this thesis (see chapter one), the Opportunities programme is the main policy designed to alleviate poverty in Mexico. This programme focuses on enhancing the human capital of children and young people of poor families by investing in their education, health and nutrition. Nevertheless, the School dropouts' survey does not specify the standards for assigning scholarships from all the other sources of funding. In other words, the financial aid offered by the Ministry of Education, the federal governments, the federal states and by some universities, could have been assigned by taking into account socioeconomic circumstances, academic achievement, these two criteria or some other requisite.

Besides, having higher levels of prior academic achievement (grades in lower secondary education) was strongly associated to a higher likelihood of finishing upper secondary schooling. However, it is important to bear in mind that although grades are an important indication of academic performance this variable does not

specify the extent to which individuals have developed other skills and abilities such as mathematic competencies, language competencies, sciences competencies and civic and citizenship competencies. Moreover, facing certain life events during studies such as parental problems, unsafety in the pathway to school, sickness or dead in family, marriage and pregnancy, increases the risk of dropping out from school. In other words, the more uncertain life events faced by youths the more likely they are of dropping out.

These findings corroborates some assumptions of the rational action theory which are summarised in the next research hypothesis: *Individuals make rational calculations regarding the opportunities of succeeding in reaching higher educational transitions in the Mexican educational system in a way that they outweigh the costs and benefits associated to each decision, take into account their academic performance and try to avoid uncertain events which may hamper their chances of moving ahead in the curriculum. Therefore, if persons perceive economic benefits -present and/or future- for attending schools; if they achieve higher levels of academic performance than their counterparts and if they do not face risk life events that may hinder their educational trajectories, then they are more likely to reach higher educational levels.*

Finally, this chapter has examined the factors that promote and hinder completion of upper secondary education. The chapter that follows moves on to explore the transition from upper secondary to higher education.

## **Chapter 7 Third school transition: access to higher education**

### **7.1 Introduction**

In Mexico, the levels of participation in higher education are considerably low. For instance, during the school year 2014-2015, only 34.1 per cent of the persons aged 19-23 attended higher education. The population of students matriculated in tertiary education is around 3.5 million of students, the number of institutions is 7073 and the number of teachers is 363,695. In addition, out of the total population of students enrolled at this educational level, 1.8 million are men and 1.7 million are female. (Presidencia de la República, 2015)<sup>14</sup>.

The last research question of this dissertation seeks to identify the extent to which socio-cultural, ascriptive, economic and institutional factors affect the chances of entering higher education and whether human agency dimensions have an impact on individuals' opportunities of gaining a place in tertiary education.

In order to answer these research questions and to test the explanatory power of Sen's and Bourdieu's theories<sup>15</sup>, binary logistic regression models are estimated. The dependent variable is binary: coded 1 if a young person enrolled in higher education and coded 0 if the person did not continue studying at university. To be specific: there are seven explanatory variables taken into account in the statistical modelling: the highest level of education of parents, an index of home possessions, gender, ethnicity, the type of institution attended in upper secondary, grades in lower secondary, access to scholarship in upper secondary and freedom to choose upper secondary school. Due to data availability, the majority of the predictors refer to individuals' experiences in upper secondary education.

The results of the first set of binomial logistic regression models are expressed in terms of average marginal effects. The statistical models take into account survey

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<sup>14</sup> Chapter 1 presents more detailed information on Mexico's higher education system.

<sup>15</sup> See Chapter 6 for a more extensive description of how these hypotheses are tested.

design effects. Before discussing the results of the logistic regression analysis some descriptive statistics are presented.

## 7.2 Empirical results

### 7.2.1 Descriptive findings

This section discusses the findings on the factors influencing higher education entry. Firstly, some descriptive statistics are presented and after that the results of the statistical modelling are discussed.

Table 37 shows the proportions of individuals who continue and do not continue studying higher education conditional on having completed upper secondary schooling. The results indicate that out of the total number of persons who conclude upper secondary, 55% enter university and 45 per cent do not enrolling at this educational level.

**Table 37.- Percentages of persons who continue and do not continue studying higher education**

|                                       | Percentages |
|---------------------------------------|-------------|
| Continue studying higher education    | 55          |
| Non- continuation of higher education | 45          |
| Total data weighted                   | 2,243       |

Note: These percentages were estimated based on weighted data.

The results displayed in Table 38 indicate that out of the total number of respondents who have no parents with upper secondary education, 44.3 per cent enrolled at university and this figure for those who have at least one parent with higher education is 71 per cent.

**Table 38.- Percentages of persons who continue and do not continue studying higher education by parental education**

|                 | No parents with upper secondary | At least one parent with upper secondary | At least one parent with higher education |
|-----------------|---------------------------------|--|---|
| Do not continue | 55.6                            | 38                                       | 28.6                                      |
| Continue        | 44.3                            | 62                                       | 71.3                                      |
| Total           | 1266                            | 392                                      | 585                                       |

Note: These percentages were estimated based on weighted data.

Table 39 shows the proportion of male and female that continue and do not continue studying higher education. Out of the total number of women, 53.4 per cent continue

studying university whereas out of the total number of men 57 continue studying higher education.

**Table 39.- Percentages of persons who continue and do not continue studying higher education by gender**

|                 | Male  | Female |
|-----------------|-------|--------|
| Do not continue | 42.9  | 46.5   |
| Continue        | 57.1  | 53.4   |
| Total           | 1,020 | 1,223  |

Note: These percentages were estimated based on weighted data.

According to the statistics displayed in Table 40, 55.6 of the group of non-indigenous entering university and this figure for the group of indigenous is 42.7 per cent.

**Table 40.- Percentages of persons who continue and do not continue studying higher education by ethnicity**

|                 | Non-indigenous | Indigenous |
|-----------------|----------------|------------|
| Do not continue | 44.3           | 57.2       |
| Continue        | 55.6           | 42.7       |
| Total           | 2140           | 103        |

Note: These percentages were estimated based on weighted data.

It is interesting to note that out of the total number of individuals who attended technological schools managed by the states governments, 67 per cent continue studying higher education and this figure for those who studied at private and academic high status schools are 63.8 and 54.8 per cent, respectively. In contrast, only 36 out of the total number of persons who studied at academic open and distance learning schools gained a place in a higher education institution and 41 per cent of the individuals who attended technical schools were able to enter college. (Table 41).

**Table 41.- Percentages of persons who continue and do not continue studying higher education by the type of institution attended in upper secondary education**

|                                     | Do not continue | Continue | Total |
|-------------------------------------|-----------------|----------|-------|
| Academic traditional schools        | 45.1            | 54.8     | 1153  |
| Private schools                     | 36.2            | 63.8     | 250   |
| Academic open and distance learning | 64              | 36       | 65    |
| Technological federal schools       | 44.2            | 55.8     | 437   |
| Technological states governments    | 32.6            | 67.3     | 96    |
| Technical                           | 58.7            | 41.3     | 193   |
| Other                               | 52              | 48       | 49    |



Note: These percentages were estimated based on weighted data.

Moreover, the explanatory power of the variable freedom to choose upper secondary school is examined in the transition on access to higher education for two main reasons. The first one is to explore whether human agency' dimensions have instrumental benefits for making different school transitions and the second one due to data availability: in other words, no other variables related to human agency were available in the School dropouts' survey dataset.

Table 42 shows the proportions of those who continue and do not continue higher education according to the degree of freedom to choose upper secondary school. The results illustrate that regardless of who choose upper secondary school most of the persons enter higher education. For instance, out of the total number of those who selected school 55 per cent continue education and 44 per cent do not continue studying higher education and out of the total number of persons who was allocated to the school by institutional authorities, 41.5 per cent do not continue higher education, and 58 per cent entering at this educational level.

**Table 42.- Percentages of persons who continue and do not continue studying higher education by freedom to choose upper secondary school**

|                 | Institutional allocation | Parents' choice | Individuals' choice |
|-----------------|--------------------------|-----------------|---------------------|
| Do not continue | 41.5                     | 48.5            | 44.9                |
| Continue        | 58.4                     | 51.4            | 55.0                |
| Total           | 75                       | 70              | 2098                |

Note: These percentages were estimated based on weighted data.

Table 43, shows a comparison of the means of grades and the average of the index of home possessions for the groups of those who continue studying higher education and those who do not enter at this educational level. The results indicate that the mean of grades for those who enter university (8.5) is slightly higher than the mean of grades for those who do not continue studying higher education (8.3). However, the t-test indicates that this difference is not statistically significant (t-statistic=-7.7, p-value=1). Moreover, for the group of continuers, the mean of the index of home possessions is slightly higher than the figure for those who do not enter college (11.8 and 10.3 respectively). Nevertheless, the t-test indicates that the difference of means is not statistically significant (t-test=-11.64, p-value= 1.00).

**Table 43.- Comparison of means for continuous variables**

| Variable                     | Statistics |       |              |     |     | Comparison of means<br>(t-test) |                    |            |             |
|------------------------------|------------|-------|--------------|-----|-----|---------------------------------|--------------------|------------|-------------|
|                              | Obs.       | Mean  | Std.<br>Dev. | Min | Max | Continue                        | Do not<br>continue | t-stat     | p-<br>value |
| Grades in lower<br>secondary | 2243       | 8.4   | 0.01         | 6   | 10  | 8.5                             | 8.3                | -7.7       | 1.00        |
| Index of home<br>possessions | 2243       | 11.17 | 0.06         | 0   | 15  | 11.83                           | 10.39              | -<br>11.64 | 1.00        |

Descriptive statistics offer some preliminary insights to explore differences between the groups of those who enter higher education and those who those not enrolled at this educational level. Descriptive analysis seems to indicate that the sample analysed at the third school transition is more homogenous in many aspects (such as freedom to choose upper secondary school and prior academic achievement) than the sample analysed at previous educational transitions. The next section will present the results of the binomial logistic regression models.

### **7.2.2 Binomial logistic regression analysis to predict access to higher education**

Table 44 displays results of a set of binomial logistic regression models that were estimated to predict the probabilities of entering higher education conditional on having completed upper-secondary for the age group 18-25. Model 1 examines the effect of parental education on the probability of entering higher education. The results indicate that for those who have at least one parent with higher education the probability of enrolling in university is 27 per cent higher compared with those who have no parents with upper secondary education as the highest level of schooling. Besides, the probability of gaining a place at college is 18 per cent higher for individuals who have at least one parent with upper secondary education than the probability for those in the reference category.

Model 2 explores the effect of parental education, home possessions, gender and ethnicity. The results indicate that for one unit change in the index of home possessions, the probability of entering college increases by 2.3. On the other hand,

for females and indigenous the probability of entering higher education as compared with the references groups (being male and being non-indigenous respectively) is not statistically significant. These results were obtained holding all other variables at average values.

Model 3 assess the effect of the type of institution attended in upper secondary education. The results indicate that the probability of gaining a place in a higher education institution is 13.7 per cent higher for individuals who attended technological schools managed by the state governments compared with the probability for those in the reference group. Moreover, the model shows that the probability of entering higher education is 11 per cent lower for young people who studied at technical upper secondary schools as compared with having studied in an academic traditional school. Similarly, the probability of being enrolled in college is 14 per cent less if the person studied in open and distance learning school compared with the probability for those in the reference category. These results are estimated holding all other variables at their average values.

Model 4 explores the effect of prior academic achievement and having access to scholarship in upper secondary on the chances of entering higher education. The results indicate that the change in the probability of being enrolled in university is 4 per cent for one unit change in grades in lower secondary. Besides there is no difference statistically significant on the probability of entering higher education for those who had access to scholarships in upper secondary compared with those who did not have financial support. These results are valid holding all other variables at average values.

Model 5, adds the effect of the variable freedom to choose upper secondary school. As it is showed, the probability of entering higher education for individuals who mentioned that their parents chose school is not statistically different than the probability for those who were placed in schools by institutional authorities. Moreover, there is no change in the probability of entering university if individuals chose upper secondary school as compared with being placed in school by

institutional authorities. These results are estimated holding all other variables at average values.

**Table 44.-Binomial logistic regression models to predict access to higher education (AMEs)**

| Variable  | Model 1          | Model 2           | Model 3           | Model 4           | Model 5           |
|---|------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Parental education (Ref. no parents with upper secondary)</b>              |                  |                   |                   |                   |                   |
| Upper secondary   | .175**<br>(.032) | 1.30***<br>(.034) | .126**<br>(.033)  | .122**<br>(.032)  | .122**<br>(.032)  |
| Higher education  | .270**<br>(.027) | .199***<br>(.031) | .194**<br>(.032)  | .184**<br>(.032)  | .185**<br>(.032)  |
| <b>Index of home possessions</b>  |                  | .023***<br>(.004) | .023**<br>(.004)  | .021**<br>(.004)  | .021**<br>(.004)  |
| <b>Female</b>   |                  | -.021<br>(.024)   | -.020<br>(.023)   | -.030<br>(.023)   | -.030<br>(.023)   |
| <b>Indigenous</b>   |                  | -.037<br>(.058)   | -.049<br>(.058)   | -.054<br>(.056)   | -.049<br>(.057)   |
| <b>Type of institution (Ref. Academic traditional)</b>                        |                  |                   |                   |                   |                   |
| Private   |                  |                   | -.003<br>(.041)   | -.010<br>(.040)   | -.006<br>(.040)   |
| Academic open and distance learning   |                  |                   | -.164**<br>(.066) | -.170**<br>(.067) | -.169**<br>(.067) |
| Technological federal schools   |                  |                   | .004<br>(.030)    | .006<br>(.030)    | .006<br>(.030)    |
| Technological state governments   |                  |                   | .137**<br>(.051)  | .128**<br>(.053)  | .128**<br>(.05)   |
| Technical   |                  |                   | -.110**<br>(.046) | -.120**<br>(.046) | -.119**<br>(.047) |
| <b>Grades in lower secondary</b>  |                  |                   |                   | .087**<br>(.017)  | .089**<br>(.017)  |
| <b>Access to scholarship in upper secondary</b>                               |                  |                   |                   | -.031<br>(.027)   | -.031<br>(.027)   |
| <b>Freedom to choose upper secondary school (Ref. Institutional decision)</b> |                  |                   |                   |                   |                   |
| Parents' choice   |                  |                   |                   |                   | -.129<br>(.089)   |
| Individuals' choice   |                  |                   |                   |                   | -.055<br>(.059)   |
| <b>N</b>  | 2,243            | 2,243             | 2,243             | 2,243             | 2,243             |
| <b>R2</b>   | .043             | .058              | .066              | .080              | .081              |

Average marginal effects are reported and standard errors appear in parenthesis. The category 'other' of the variable type of institution is not reported but it was controlled for in the models. Legend: \* p<.1; \*\* p<.05; \*\*\* p<.01

Furthermore, in order to explore the extent to which the results of the previous set of five binomial logistic regression models improves by incorporating additional explanatory variables, variations in the pseudo r-square are reported in Table 44. The value of the pseudo r-squared rises from 4.3 in Model 1 to 8.1 in Model 5. This means that the variable parental education explains only around 4 per cent of the results of the Model whereas all the other variables included in Model 5 explain 8.1 per cent of the results. Overall, the analysis improves by incorporating more predictors in the regression analysis.

In addition, multicollinearity diagnostics are estimated in order to explore whether there are issues of large correlations among the explanatory variables (see Table 45). Specifically, for all the variables, the variance inflation factor is significantly less than 10, the mean value of the VIF is close to 1 (1.10) and the tolerance values of all the predictors are substantially greater than .10. These results indicate that there are not problems of great correlations among the explanatory variables which deserve further attention.

**Table 45.- Multicollineality diagnostics**

| Variables                 | VIF  | SQRT VIF | Tolerance | R-Squared |
|---------------------------|------|----------|-----------|-----------|
| Parental education        | 1.25 | 1.12     | 0.79      | 0.200     |
| Index of home possessions | 1.32 | 1.15     | 0.75      | 0.240     |
| Gender                    | 1.02 | 1.01     | 0.98      | 0.010     |
| Indigenous                | 1.03 | 1.02     | 0.96      | 0.033     |
| Type of institution       | 1.01 | 1.01     | 0.98      | 0.013     |
| Grades                    | 1.07 | 1.03     | 0.93      | 0.064     |
| Scholarships              | 1.06 | 1.03     | 0.94      | 0.054     |
| Freedom to choose school  | 1.01 | 1.01     | 0.989     | 0.010     |
| Mean VIF                  | 1.10 |          |           |           |

## 7.3 Summary and discussion

In this chapter, binomial logistic regression models were estimated in order to measure the impact of structural and agency related factors as well as the effect of the type of institution attended in upper secondary education on the chances of reaching higher education. Two hypotheses were formulated earlier in this thesis in order to explain an individual's capacity to make higher educational transitions.

Sen's hypothesis points out that human agency dimensions such as individuals' freedom to choose school makes an impact on the chances of reaching higher educational stages. More specifically, it was tested that if individuals have more freedom/power to make educational decisions, such as selecting the type of institution to study, they are more likely to attain higher levels of education. The hypothesis from Bourdieu's tradition that was tested in this chapter states that structural factors such as socio-cultural and economic resources affect individuals' educational attainment in a way that persons from more advantageous origins are more likely to participate in upper secondary and higher education because their wealthier living conditions allow them to stay longer in schools.

This chapter has found that social origin and material resources have an effect on the opportunities of entering higher education. More specifically, the results indicate that having parents with higher levels of schooling is associated with higher probabilities of reaching university education. Besides, having more material resources at home was positively associated with higher chances of entering university. Therefore, these findings corroborate the hypothesis from Bourdieu tradition who states that persons' educational attainment is influenced by structural factors such as cultural capital and socioeconomic resources.

Moreover, in contrast to earlier findings (see chapter six), no evidence of an association between freedom to choose upper secondary school and the probability of gaining a place in university was detected. Therefore, research hypothesis from Sen's capability approach was not confirmed with the empirical results of the transition from upper secondary to higher education. Nevertheless, this finding suggests that having the power to participate in decision making at one educational stage it is relevant only for that specific educational phase. In addition, it can be assumed that having the freedom to choose school in one transition, does not guarantee that persons will permanently have freedom to make other meaningful educational choices at latter stages in the educational career. It would be ideal young people would experience a freedom expansion throughout the school years in order to

become more autonomous citizens able to make key educational and personal decisions. It is worth stressing that due to data limitations this study includes only one dimension of human agency; however, if the debate on the role of agency on educational transitions is to move forward, many more indicators measuring freedom to choose and empowerment in educational settings need to be developed in future studies.

On the other hand, gender is not a significant predictor of the chances of entering higher education. Similarly, this study did not find significant differences between indigenous and non-indigenous persons in the chances of entering higher education. This result may be explained by the fact that the small proportion of indigenous that make the transition from upper secondary to higher education have certain attributes (e.g. high levels of academic performance, motivation and determination) which are valuable for moving ahead in their educational trajectories. Another possible explanation is that the group of indigenous that make this transition are living in urban centres where more higher education institutions are placed; therefore, they have more chances to enter at any university.

Furthermore, this thesis highlights why it is important to analyse other sources of institutional differentiation of upper secondary education beyond the typical dual distinction between academic and vocational education. The type of institution attended in upper secondary education has significant effects on the chances of entering higher education. For instance, individuals who studied at open and distance learning programmes and those who attended technical schools were much less likely to enter higher education than those who studied in academic traditional schools. These results are consistent with the findings for the second educational transition where it was showed that individuals who studied at open and distance learning programmes and technical schools had fewer probabilities of completing upper secondary education than those who studied in more prestigious institutions (see chapter seven).

It seems possible that these results are due to open and distance learning programmes being low cost schools which operate with fewer material and human resources, their

curricular content is different and they have no selection practices based on person's previous academic performance. Moreover, technical schools do not formally impede students from entering tertiary education; but this type of institution is mostly oriented to prepare individuals for an early transition to the labour market. So, the curricular content offered by technical schools might contribute to explain why their graduates are less likely to enter university.

One of the most interesting findings was that those who studied in technological schools managed by the states governments (Cecytes and Cecyt) were more likely to reach university education than those who studied in other types of vocational schools such as technological federal schools and technical schools. Students attending technological schools managed by the states governments were also more likely to complete upper secondary education rather than withdrawal than those who attended other types of academic and vocational schools (see chapter seven).

Therefore, the type of institution individuals attend make a significant impact on students mobility across transitions. This finding is consistent with Kerckhoff's view that some types of institutions offer more benefits for individuals' educational attainment than others. More specifically, Kerckhoff (1993:12) points out that: "Some structural locations [institutions] are advantageous and other disadvantageous in that being in them increases or decreases the individual's probable outcomes, net of any effects of the individual's personal characteristics".

Finally, according to Shavit and Muller (2010) many scholars subscribe that vocational education around the world contributes to the reproduction of social inequalities because it diverts students from entering higher education and from reaching the professions. They also note that there is another group of scholars considering that vocational education provides a 'safety net' against unemployment. What is clear from this thesis is that the role of vocational education in terms of promoting students' mobility across transitions is varied. Some types of vocational schools such as technological schools managed by the states governments have a positive effect for promoting mobility across transitions and therefore, they may offer more chances for freedom expansion throughout education. While, some other



types of institutions such as technical schools reduce individuals' opportunities for reaching higher levels of schooling and thus they may reinforce the reproduction of social differentials. Thus, the effects of vocational education in Mexico are diverse and some types of schools could serve transformative roles (Sen, 2009) while others reproductive roles (Bourdieu and Passeron, 1977).

## **7.4 Social origin effects across school transitions**

Having discussed the findings for the three school transitions: participation in upper secondary (chapter five), completion of upper secondary (chapter six) and access to higher education (chapter seven), this section examines patterns of social origin effects across these school transitions.

Figure 6 shows the average marginal effects (AMEs) of the variable parental education when no other variables were included in the binomial logistic regression analysis and the AMEs of parental education when all the other explanatory variables were incorporated in the binomial regression analysis at each school transition. For the first school transition (access to upper secondary education), the AMEs of entering upper secondary for those who have at least one parent with higher education as compared with the reference group is 15.6 per cent; this figure rises by 28 per cent for the second school transition (completion of upper secondary education) and it is 27 per cent for the third school transition (access to higher education). The AMEs of the variable parental education when all the other explanatory variables are included in the regression analysis is 10.5, 16 and 18.5 respectively for each school transition.

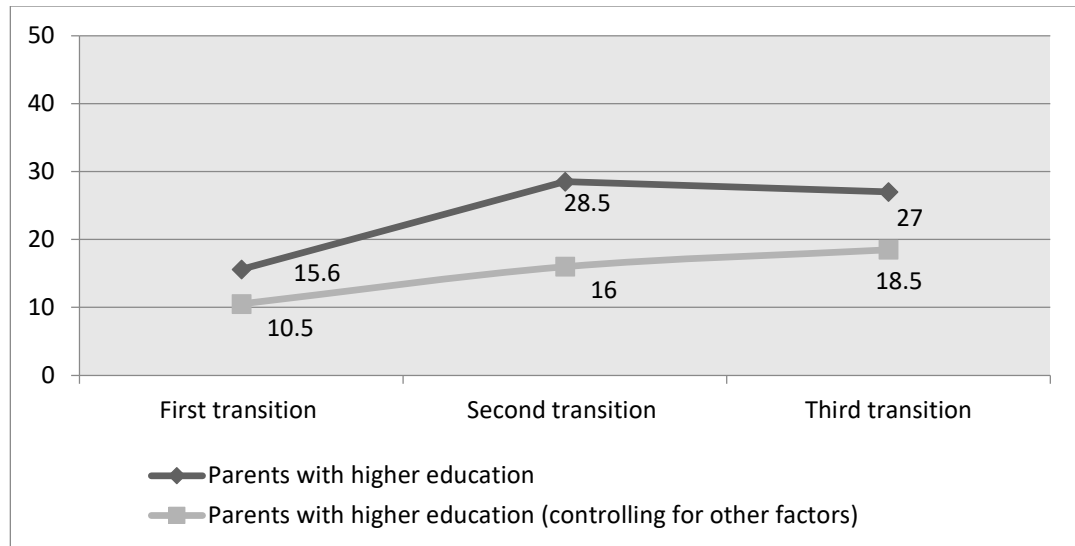
In both scenarios, when exploring the net effect of parental education and when examining its effects after incorporating all the other predictors in the regression analysis, the pattern is similar: social origin effects are higher for completion of upper secondary and entrance at university than for entering upper secondary education. Perhaps what is more important to highlight is that when more variables are included in the regression analysis, social origin effects across transitions are less strong. This result indicates that at different educational stages the impact of social origin seems to be mediated by other explanatory variables.

Similarly, the average marginal effects of the index of home possession are almost constant for the second and third transition. To be specific, the results suggests that for one unit increase in the index of home possessions, the probability of completing secondary increases by 2.6 and this figure is 2.3 for making the transition from upper secondary to higher education. Moreover, it is important to note that there is no data available to explore the value of the index of home possessions for the first school transition.

Overall, the results of this thesis differ from some published studies who have noticed that social origin effects are greater for earlier school transitions than for later educational phases (Mare, 1980, 1981, Shavit and Blossfeld, 1993); however, the findings are consistent with other research for Mexico which suggests the opposite results (Solís, 2013, and Solís, 2014). In an attempt to explain the results for Mexico, Solís relies on assumptions of the maximally maintained inequality approach, which was originally developed by Raftery and Hout (1993), to state that individuals from higher social backgrounds are more likely to make higher educational transitions, such as entering upper secondary and higher education, due to these educational levels are not universal in the Mexican context.

Nevertheless, it can be argued that the previous explanation can be complemented with micro level arguments derived from other theories such as the rational action theory. The results from Mexico can be explained also by the rational action theory. As predicted from this theory, individuals from higher social classes are more likely to make higher educational transitions because they require higher levels of schooling to avoid downward social mobility. In addition, they are more likely to afford the economic costs for remaining for longer periods in education. Thus, the rational action perspective provides other arguments that might contribute to understand patterns of social backgrounds effects on educational transitions in Mexico.

**Figure 6. - Social origin effects across school transitions**



Source: my own elaboration

## **Chapter 8 Conclusions and policy implications**

### **8.1 Conclusions and summary of the main findings**

The overarching aims of this thesis were: 1) to conduct interdisciplinary theoretical work between the capability approach and the sociology of education; 2) to apply the theoretical approaches by operationalising concepts and testing hypotheses, and 3) to investigate the main factors influencing individuals' capacity to make higher educational transitions using survey data from Mexico. In the next lines, I describe the main contributions of this thesis (theoretical and empirical), the limitations of the study and policy implications.

#### *Theoretical contributions*

This thesis makes several contributions to existing knowledge. First of all, this study has provided a new theoretical integration of Sen's capability approach, Bourdieu's sociocultural reproduction theory and more contemporary sociological perspectives. It was argued that Sen's focus on assessing inequality in terms of capabilities; his concerns on individuals' adaptive preferences and his emphasis on enhancing human agency can be complemented with insights from theories on education and social stratification.

It was also noticed that although classical and contemporary perspectives on education and social stratification do not fully address issues of freedom to choose and the role of individuals' values and preferences in educational opportunities, these theories offer deep understanding on how the social group to which individuals belong might have an impact on educational (dis)advantages and on educational decision making. Thus, more contemporary sociological perspectives have been widely used to explain patterns of social background differentials in educational attainment at the system level.

Perhaps what is more important to stress is that the empirical findings of this study allow validating several research hypotheses. First, a research hypothesis from Bourdieu's sociocultural reproduction theory was corroborated. The previous three chapters provide significant evidence of the impact of social origin on individuals' educational attainment. In addition, chapters 6 and 7 provide evidence that having higher levels of economic resources increases the chances of making higher educational transitions. In other words, sociocultural and economic resources strongly explain why some individuals are more likely to reach higher levels of schooling than others.

Nevertheless, this thesis provides evidence that not only socio-cultural and economic resources influence the attainment of higher levels of education but also human agency dimensions. The hypothesis that human agency -measured by individuals' degree of freedom to choose school- increases the likelihood of making higher educational transitions was corroborated in chapter 6. More precisely, the evidence shows that probabilities of completing upper secondary education were lower for persons who were placed in schools by institutional authorities and for persons who mentioned that their parents choose school, than for those individuals who had higher degrees of freedom to choose school. However, Sen's hypothesis was only partially proved because freedom to choose upper secondary school was not associated to the probability of attending university education (chapter 7). The findings of this research revealed that freedom to choose in one transition is instrumentally relevant for attaining that specific transition but it does not assure future benefits at subsequent educational phases.

Consequently, it can be assumed that having certain degree of freedom to choose at one stage it is not an indication that persons will be free to make other educational decisions at latter phases in their educational trajectories such as the selection of university and career choice. At later educational phases it may occur that freedom to choose is constrained not only by structural factors but also by institutional arrangements: for example, by universities' procedures for admitting students. Unfortunately, there were no data available to test the effects of freedom to choose at the time of making the transition from upper secondary to higher education.

Apart from that, it is worth emphasising that the variable freedom/power to participate in decision making is only one dimension of human agency. Thus, more research on other dimensions and sub-dimensions of agency need to be undertaken in order to continue broadening our understandings of its role on individuals' educational opportunities.

Another hypothesis that was corroborated is the one from the effectively maintained inequality approach. It was shown that individuals who come from more advantageous social backgrounds are more likely to attend more prestigious schools such as academic traditional schools and private schools. To be specific, results displayed in the transition from lower secondary to upper secondary education (chapter 5) support the hypothesis of the effectively maintained inequality perspective developed by Lucas (2001). According to Lucas, even if social differences in access to education are reduced or eliminated, social inequalities are preserved on qualitative aspects of schooling: for instance, on the kind of education and/or in the quality of educational outcomes. This theory illuminates findings from Mexico, however, there seems to be an exception: technological schools of the state governments, which are perceived as good quality options, seems to be less socially selective and they perform better than other types of schools in terms of promoting students' mobility across transitions.

Finally, this thesis corroborates some assumptions of the rational action theory developed by Breen and Goldthorpe (1997). Specifically it was tested that having higher levels of educational achievement, economic benefits and the absence of risk events positively affects individuals' chances of reaching higher educational levels. The evidence presented in chapter 6 shows that having higher levels of academic performance, having access to economic benefits for attending school (scholarship) and facing very few (or none) risk situations during studies, increases individuals' chances of completing upper secondary education instead of dropping out. However, in order to fully test the sociological version of the rational choice theory in the Mexican context, some others measurements need to be undertaken (e.g. students' aversion to descend the social position and measures of educational ambitions).

Overall, this thesis confirms four research hypotheses. However, it should be acknowledged that a central interest was to test Sen's and Bourdieu's theories. As predicted for Bourdieu's theory, key dimensions that contribute to explain students' mobility across transitions in the Mexican context are: cultural capital and economic resources. Besides, from Sen's capability approach it can be said that, in spite of structural inequalities, human agency is instrumentally relevant to explain persons' educational attainment.

### *Factors influencing educational transitions*

In addition to the theoretical contributions, this thesis has empirically investigated the effects of a broad range of factors on persons' opportunities to attain three educational transitions: access to upper secondary education, completion of upper secondary and progression to higher education using the School dropouts' survey dataset from Mexico. As it was mentioned in the previous lines, this thesis was not restricted to examine social origin effects on educational transitions and explored the role of other ascriptive factors (ethnicity, age, gender); the effects of urbanisation; the influence of capability dimensions; the role of educational experiences and institutional factors.

The results of this investigation show that socioeconomic effects are higher for the second and third educational transitions (completion of upper secondary and access to higher education) than for the transition from lower secondary to upper secondary education (Figure 6). Although these results differ from some published studies conducted for developed countries which show declines in social background effects across transitions (Mare, 1980 and 1981; Shavit and Blossfeld, 1993; and Lucas, 2001) they are consistent with previous research conducted for Mexico (Solís, 2013; Solís, 2014). Overall, it appears that patterns of social background effects across educational transitions identified for nations with higher levels of industrialization and higher educational coverage diverge for developing regions such as Mexico where completion of post-primary education is not nearly universal.

Although there are a considerable number of studies on the effects of social background on educational attainment; researchers have not treated in much detail

the role of ethnicity in the opportunities to attain higher educational transitions using survey data. In Mexico, it is unclear the exact number of indigenous students who attend upper secondary and higher education because schools do not explicitly collect information on indigenous students (e.g. by asking whether persons speak or understand indigenous languages) (Schmelkes, 2003). The findings of this dissertation extends our knowledge on indigenous' educational trajectories in Mexico. More specifically, the results of this thesis illustrate that indigenous are less likely than non-indigenous to enter technological federal schools and technical schools. A plausible explanation of these results is that the offer of vocational education is not targeted for locations which have certain concentration of indigenous populations.

In addition, indigenous were more likely to complete upper secondary education than non-indigenous (Table 35): however, after taking into account educational experiences (e.g. academic performance and access to scholarships) there were no statistically significant differences between indigenous and non-indigenous on the chances of making this school transition. Similarly, this thesis provides evidence that there are no significant differences in the probability of entering higher education between indigenous and non-indigenous persons. These results might be explained by the fact that indigenous persons who make these transitions have developed certain skills and abilities that allow them to move ahead in the curriculum. Alternative interpretations of this finding are that indigenous who enter university are either those who have moved from rural to urban areas and as a consequence they have available a broader offer of universities.

Moreover, the results of this dissertation show some indication that Mexico has achieved greater gender parity in entrance at upper secondary and higher education. However, there is concern, especially for the high number of male students who dropout from upper secondary education. Besides, this thesis shows geographical differences in the chances of attending vocational upper secondary education. These results may indicate that the offer of technological schools and technical schools is unequally distributed in favour of more urbanised centres and as consequence those living in rural areas are less likely of entering this type of education.



Besides, aspirations matter in the chances of entering at any type of institution and they are especially significant for entering more prestigious institutions such as academic traditional schools, private schools and technological schools of the state governments. In other words, individuals who wish entering university are more likely to enter the types of schools that offer more benefits for educational mobility. An implication of this result is the possibility that having aspirations for higher levels of schooling is consistent with having more information regarding the benefits associated with attending certain types of upper secondary schools.

With respect to the role of institutional factors on educational transitions, this research extends our knowledge on the effects of academic and vocational education. Specifically, the findings of this thesis shows that technological schools managed by the state governments (e.g. Cecyte and Cecyt) offer more benefits for individuals' upward educational mobility than the other types of vocational schools analysed in this dissertation (technological federal schools and technical schools). Furthermore, those who attended open and distance learning schools, were less likely to finish upper secondary education and also were less likely to enter university than those who attended academic traditional institutions.

Finally, this thesis concludes that the extent to which structural factors, human agency and capability dimensions and educational experiences impact on individuals' educational trajectories is to some extent shaped by institutional arrangements at each stage of education. The procedures for admitting students vary for each educational level and they also differ according to regions and types of institutions. For instance, common admission procedures of public upper secondary schools and universities include that individuals select their preferred institution; then, they are required to take an entrance examination: and after that, institutional authorities check the availability of places at schools before formally admitting students. While private schools and open and distance learning programmes do not select individuals based on their academic achievements. The former requires that applicants pay the corresponding tuition fees and what the latter mainly requires is the completion of the previous educational stage.

### *Limitations*

It must be recognised that this study was limited in several ways mainly because the survey under analysis is cross-sectional and it was not explicitly designed to investigate educational transitions. In Mexico, like in many other Latin American countries, there is a lack of longitudinal representative data to assess educational experiences at the system/national level. Therefore, what we know about educational trajectories in this Latin American country has been largely based upon empirical studies that use cross-sectional surveys and surveys which are representative only for some federal states or specific regions of the country. Nevertheless, in recent years more large scale data has become available for Mexico. For instance, the school dropouts' survey, 2011 and recent surveys conducted by the National Institute for the Evaluation of Education allow some retrospective analysis of individuals' educational trajectories. The availability of high quality statistical information offers relevant opportunities for the analysis of educational transitions.

Finally, the findings of this study have a number of important implications for future practice which are discussed in the next section.

## **8.2 Policy implications**

This section acknowledges several public educational policies that are currently being implemented in Mexico and after that it discusses some strategies to make more equitable educational transitions in light of the empirical evidence of this dissertation.

For many decades, public policies for addressing the challenges of upper secondary education were almost non-existent (Székely, 2010). Throughout the years this educational level has received less financial attention from the federal and the state governments than the support provided to elementary education: however, more recently, several policy initiatives were formulated in order to address the main challenges of upper secondary education. For instance, some notable policies are the Reform for the upper secondary level (*Reforma Integral de la Educacion Media*

*Superior, RIEMS*), the new legislation of 2011 which makes compulsory upper secondary education and the more recent educational policies (Mendoza, 2013).

From 2007 onwards, the Reform for the upper secondary level has been implemented in Mexico. The main purposes of this policy initiative are to expand the levels of participation in upper secondary education, improve the quality of education and ensure equity (Székely, 2010). Furthermore, the legislation established in 2011 made modifications to the Articles 3<sup>rd</sup> and 31<sup>st</sup> of the Mexican Political Constitution in order to make compulsory upper secondary education. The new legislation has potential benefits to increase participation because federal and state governments have a strong legal obligation in terms of upper secondary's expansion. However, the new law does not specify what kind of educational services will be provided specially to those persons facing disadvantages. (Mendoza, 2013).

In addition, the most recent educational policies formulated for the period 2013-2018, propose some strategies for broadening participation in upper secondary education. One of these strategies explicitly aims to support the development of new models of open and distance learning education (Secretaría de Educación Pública, 2013:55). However, the evidence of this thesis suggest that students attending schools that have certain component of distance learning education (e.g. Video-Baccalaureates, Open-Baccalaureates, Tele-Baccalaureates and the Centres for distance learning upper secondary education, EMSAD), are much less likely to complete upper secondary education and to attend university than those who studied in academic traditional schools: so, what justifies the expansion of a type of education that provides little benefits for individuals' educational trajectories?

Academic open and distance learning schools should be more attentive to the characteristics of the persons who demand this type of education. These schools seem to work under the assumption that individuals have a strong capacity for being self-directed or independent learners which might not necessarily be true. Individuals who enter at open and distance learning programmes may be those who require more academic support. This thesis found that academic performance does not influence the chances of entering at this type of institutions which may indicate that those

persons who attain lower levels of achievement are more likely to enter at open and distance learning educational programmes.

Moreover, educational policies from 2013 to 2018 also seek to increase enrolment in current upper secondary institutions. If the expansion of upper secondary education is to a certain degree planned through increasing matriculation in vocational schools, it will be essential to take into account that vocational institutions differ in terms of their opportunities for educational mobility. This thesis found that while those attending technical schools have fewer chances to complete upper secondary and entering university, those enrolled in technological schools managed by the state governments (e.g. Cecyte and Cecyt) had more benefits for upward educational mobility. Therefore, further examination of the main characteristics of Cecytes and Cecyts is strongly recommended. On this matter, it will be worth asking what kind of curriculum is offered by these institutions, how resources are allocated, how is the admission process, among others. A greater focus on exploring school factors may provide interesting information for improving vocational education.

Some studies conducted in other countries have formulated valuable information for educational policies. For instance, Kerckhoff (1993) does not support ability grouping in upper secondary education, which is understood as the practice of sorting students in different groups according to their levels of ability, because that increases educational inequalities and reduces average level of achievement. While Gamoran (1992), notes that academic tracks outperform non-academic tracks in terms of average level of achievement in a sample of high schools in the United States. Thus, Gamoran suggests paying attention to how tracking, the separation of students in different types of institutions, is implemented and to explore more opportunities for students' mobility among institutions. Kerckhoff's and Gamoran's suggestions are valuable for the Mexican context.

Furthermore, educational policies should continue emphasizing other strategies beyond increasing access to education. For instance, unless the Mexican government adopts key policy initiatives to address the dropout phenomenon, the universalisation of upper secondary education will not be attained. This dissertation reveals that

access to scholarships is one of the strongest predictors of school completion instead of dropping out: thus, financial assistance to students should be maintained and improved. In addition, this thesis found that human agency dimensions (freedom to choose) and individuals' preferences towards education are valuable for completing upper secondary education instead of dropping out.

Moreover, by using data from the school dropouts' survey, 2011, it is estimated that the majority of upper secondary school dropouts, around 67 per cent of the total population of dropouts, would like to continue with their studies. Nevertheless, a significant proportion of dropouts are inclined to continue education not in more prestigious schools but in low status institutions such as open baccalaureates. This result might indicate that dropouts' preferences towards education have been adapted to their circumstances in such a way that they may consider that certain upper secondary schools are not reachable for them because they have accepted or taken for granted several constraints (e.g. academic, institutional or socioeconomic constraints) established by their living conditions. There is therefore a need for addressing potential issues of preference adaptation especially among dropouts.

Therefore, policy priorities should take into account young people's preferences towards education and to enhance individuals' agency achievements. The latter strategy should include promoting more spaces that allow young people's participation in educational decision-making. The extent to which certain groups such as indigenous, women and those facing economic disadvantages are able to take part in key educational decisions at different stages of their educational trajectories deserves special attention.

To conclude, from a capability perspective, it is important to foster human agency and valued capabilities throughout education because they are both intrinsically and instrumentally relevant for human development. From a structuralist perspective, it would be advisable to broaden understandings of the role of structural influences related to class, gender and ethnicity on individuals' educational and life opportunities.

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